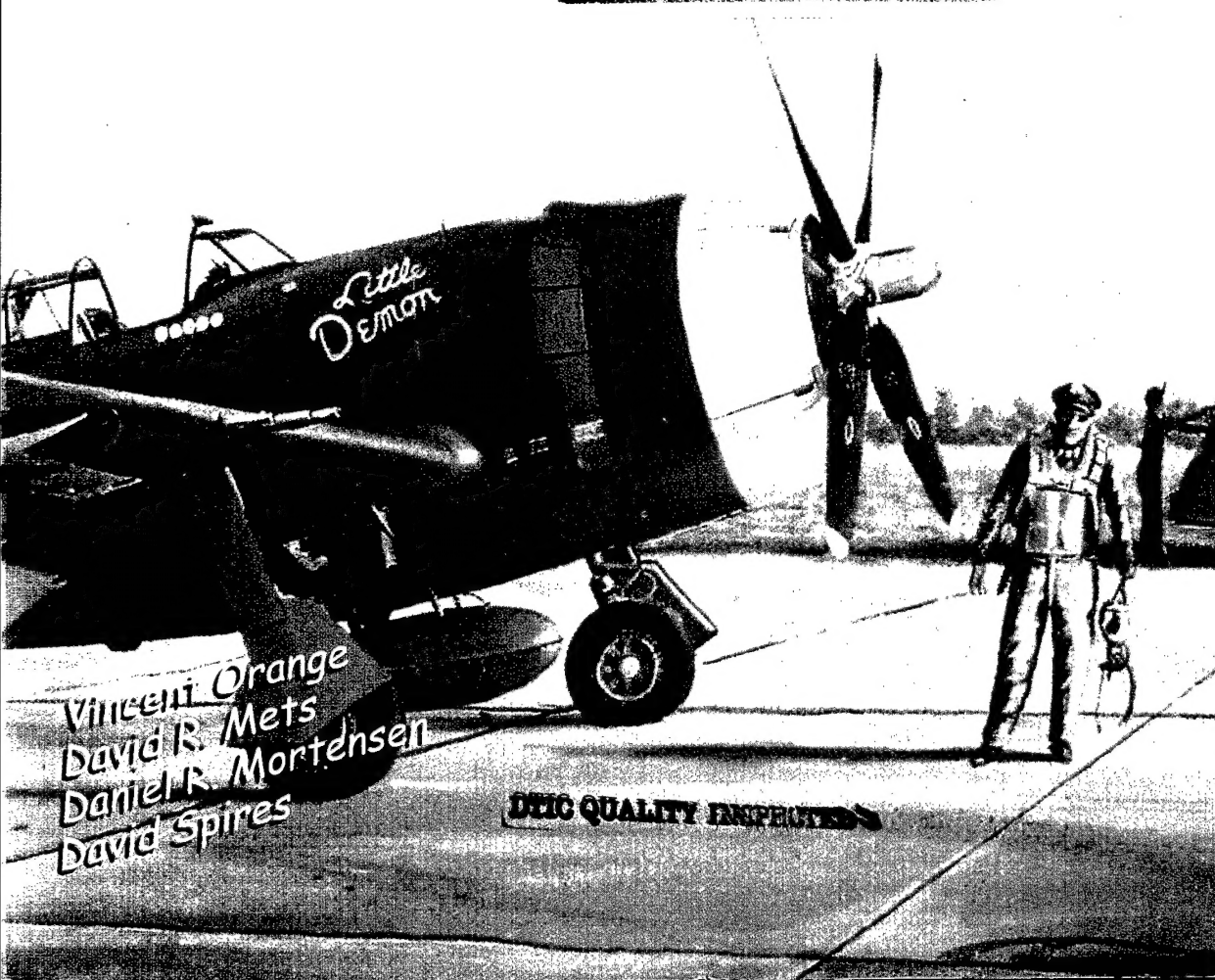


Airpower and Ground Armies

Essays on the Evolution of
Anglo-American Air Doctrine 1940-1943

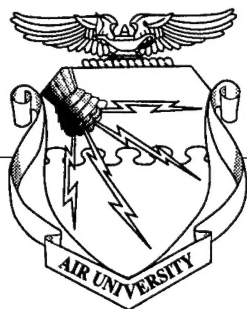
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Airpower and Ground Armies

Essays on the Evolution of Anglo-American Air Doctrine 1940-43

Editor

DANIEL R. MORTENSEN

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Foreword

It was inevitable that the airman's perspective regarding the employment of airpower in an operational theater would surface in North Africa, the first major American offensive of World War II. The publication of Field Manuals (FM) 31-35, *Aviation in Support of Ground Forces*, and 100-20, *Command and Employment of Air Power*, was a manifestation of how airmen looked at the command of airpower, the selection of missions, and the assignment of priorities. The institutionalized conflict between soldiers and airmen over air employment that raised its head in Africa continues, regardless of the recorded combat experiences of, and the individual rapport among, field commanders.

North Africa provided a stage to expose these deep-seated conflicting views of airpower. The soldier viewed the war in terms of brigades, divisions, corps, and armies; some saw the application of airpower as being in direct support of their own combat formations. The airman, on the other hand, saw the application of airpower in terms of the entire theater of operations; therefore, he saw it employed in situations and against enemy forces presenting the greatest threat in the theater. The establishment of three priorities for air missions—superiority, interdiction, and close air support—was a focus of his perspective of theater air operations.

Historical experience greatly affected the advocacy of this theater-wide operational scheme, particularly the way airpower was initially commanded and employed in North Africa. As commander of the 33d Fighter Group throughout the campaign, I participated in the testing of Air Force doctrine. A number of circumstances suggested that using the African experience as a model for doctrinal change was not appropriate. Among these were insufficient aircraft, lack of replacements, untrained personnel, inadequate all-weather airfields, and a lack of radar with extensive communications systems. Moreover, the command and employment of the available airpower in North Africa was flawed. Like other

fighter groups, the fighter group I commanded was committed piecemeal, with insufficient forces, from one mission assignment to another—all with predictable results, including high losses and unsatisfactory effect on the German air and ground forces facing us at that time.

The commanding general of II Corps considered the XII Air Support Command part of his command and therefore subject to the mission of II Corps. In addition, the 33d Fighter Group initially provided umbrella cover over the ground commander's deployed troops and directly attacked targets in front of these units. In the north, Royal Air Force (RAF) 242 Group was being employed in the same manner in support of the British army. Between the First Army in the north and II Corps in the south was the French XIX Corps, which considered the 33d as its support group via the XII Air Support Command. No single air command was responsible for gaining air superiority and interdicting German ground forces that were moving into and within the area of combat, even though the XII Bomber Command under Gen James H. "Jimmy" Doolittle was bombing German airfields in North Africa and Italy.

Along with an air campaign needing a focus to gain control of the air and interdict the battlefield, there was a need to reorganize the command structure. This need was apparent even before Casablanca and the debacle at Kasserine Pass. In addition, with the British Eighth Army and Desert Air Force moving into Tunisia, Allied actions had to be closely coordinated to prevent mutual interference. Even without a Casablanca Conference, a reorganization would have occurred.

Although the Casablanca Conference of January 1943 was renowned for the decision made there to continue the daylight bombing of Germany, its effect on the command and employment of theater airpower was even more profound. In essence, the decision to establish a tactical and strategic air force under a single air commander (Northwest African Air Forces under Gen Carl A. Spaatz) created a theater command structure with coequal air and ground commanders under Gen Dwight D. Eisenhower. By this arrangement, the air and ground component commanders received equal footing. Previously, tactical airpower was subordinated, thus limiting

the ability of XII Air Support Command and RAF 242 Group to influence the determination of theater strategy, the employment of forces, and the assignment of priority in application. It is against this background that the long-standing ideas of airmen brightened, leading to the development and publication of FM 100-20 and, later, to revisions of the basic tactical doctrinal manual (FM 31-35). These manuals served the purpose, perhaps too shrilly in retrospect, of articulating what airmen believed about airpower and how their perspectives on its use related to the views of ground forces. These manuals continue even today to be the foundation of what airmen believe about airpower and its relationship to the other services in a combat theater.

The North Africa experience provided a model for the organization and employment of tactical airpower in subsequent campaigns in Europe, Korea, Vietnam, and the Gulf War. In each of these campaigns, planners have continued to refine, expand, and improve the effectiveness of tactical air support for all forces in a theater. The priorities for employment are a function of the most pressing threat and the greatest opportunity for imposing a major effect on the fighting ability of the opposing forces. The flexibility of tactical air (its greatest asset) permits a shifting focus between air superiority, interdiction, and close air support in accordance with the priority established by the overall commander. Differences in opinion on the employment of forces will continue among air, ground, and sea commanders in combat situations. However, when the overall commander in the theater makes a decision on the strategy and priority of operations, the air component commander must and will apply his forces in accordance with that decision.

William W Momyer

WILLIAM W. MOMYER, Gen, USAF, Retired

About the Editor



Daniel R. Mortensen has been associated with US Air Force history programs since 1978. He is currently affiliated with the Air Staff History Office, Pentagon, Washington, D.C. Dr. Mortensen's publications include a US Air Force manuscript on the doctrine and practices of tactical airpower and the US Army Center of Military History's *World War II Close Air Support Joint Operations: North Africa*. He is a frequent presenter at historical association meetings and has taught numerous classes on the history of airpower.

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Introduction

Long before the current struggle between the Army and Air Force over the deep attack mission, the services debated employment of air resources. Among the earliest roles and missions issues of the 1930s, the Army argued that ground commanders needed to control air resources for "unity of command" principles. Airmen countered by citing "centralized control" principles. Historians have often suggested that the issue of centralized command was settled by the Battle of Kasserine Pass early in World War II. Continued research has shown that the centralized air command, as well as air superiority, was well established in published doctrine several years before World War II. Nevertheless, Africa was argued to be an effective testing ground even though it could hardly fill that role because of the immaturity of operations at that time. No one was arguing that support of land operations was an inappropriate role for airpower. The argument was how to carry out that task.

In any regard, some 60 years ago in Washington, D.C., through the winter and spring, 1942-43, officers on George C. Marshall's Army General Staff and Henry H. Arnold's Army Air Forces staff debated, manipulated, and eventually refined a very strong declaration about the employment of airpower in worldwide combat theaters. Fully aware of controversy, long endemic to air and ground combat relations, Marshall winced but signed his acceptance. On 21 July 1943, the Government Printing Office published FM 100-20, *Command and Employment of Air Power*, the most striking policy statement in Air Force history.

Ever after, Air Force planners and spokesmen have pointed to this document and the earliest experience of World War II combat in North Africa as indubitable proof that an air force, independent and coequal to Army ground forces, was needed. The field manual touched on air leadership in Washington, combat theaters, and subordinate field commands, but the central focus was to clarify the relationship between land

power and airpower in ground combat conditions.¹ The manual announced to ground generals, long covetous of, if not accustomed to, controlling all ground and air components on the battlefield, that the air element had an independent status in modern mobile warfare. Ultimately, FM 100-20 became the supporting document of tactical aviation, conferring greater independence and influence in much the way that Air War Power Division Plan 1 (AWPD-1), the primary World War II plan written in 1941 for offensive air warfare, gave airmen authority in strategic bombing campaigns.

With all its importance and long shelf life, it is remarkable that historians have only recently begun to investigate and understand the physical settings and circumstances behind FM 100-20. That consummate historian, Tom Mayock, who wrote the originating historical report in the second volume of Craven and Cate, *Army Air Forces in World War II*, admitted frankly that he had not had sufficient documents to validate basic events.² Much of our conventional wisdom today is based on inadequate research and hurried reporting after the war; myths and misconceptions arose early and continue to abound.

Involvement in a joint world demands that Air Force people understand Air Force history. This basic requirement gives special purpose to the following commemorative account derived from four papers presented at the annual Military History Society conference that convened in April 1993 in Kingston, Canada.

The first paper, Essay 1 in this book, describes the organization, doctrine, operational practices, and personality of the British-led air forces in the desert west of Cairo from 1940 to 1943. The second paper, Essay 2, describes and analyzes the events in northwest Africa during Operation Torch and the Battle for Tunisia in the winter and spring of 1942-43. The third essay analyzes policy development in Washington, showing, among other things, how policy is a product of headquarters thinking as much as a result of practical experience. Essay 4 analyzes the great tactical aviation exercise in northwest Europe, emphasizing the famous cooperation between George S. Patton and Otto P. Weyland.

Some issues stand out. Some of FM 100-20's concepts had a long history; some were new. The idea of coequality, for example, had been promoted successfully with the formation of US Air Force General Headquarters (GHQ Air Force) in 1935, the appointment of an assistant secretary of war for air in April 1941, the independent war planning of AWPD-1 in mid-1941, and the autonomous and coordinate responsibilities associated with organizing the Army Air Forces in March 1942.³ Indeed, formal doctrine, notably that in FM 31-35 (published in April 1942) and in Eisenhower's Operational Memo 17 (published in England in late 1942 for Operation Torch), acknowledged the independent basis of air-ground relations.

In spite of much written to the contrary, Eisenhower promoted independent air command in Africa from the very beginning. The failures in Tunisia and, especially, at Kasserine Pass in March 1943 occurred not because of improper doctrine, particularly not because of decentralized air command, but because of logistical bottlenecks—getting troops with adequate guns, trucks, planes, fuel, and service people, to the right place, in the right portions at appropriate times. In truth, inadequately trained and equipped American forces faced a superior enemy. Even the senior American airman, Carl A. Spaatz, said existing doctrine was satisfactory; only practice was needed to produce successful operations.

Flexibility of command and mission assignment, as well as air superiority, were the key air principles upon which airmen in Africa, both American and British, acted. Principles regarding mission priorities were understood by air commanders and most theater leaders in general. Air superiority, for example, had long been registered in doctrinal manuals, and that essential had not been ignored in Africa. It was just not attainable in Africa until April 1943 when a sufficient quantity of Allied forces and equipment was in place.

The provenance of FM 100-20 spoke volumes about doctrine development. The publication can be characterized as having its roots in Washington with flavoring from the field, rather than the other way around. American air combat experience had not been regularized sufficiently to provide

operational patterns useful for published doctrine. As nearly everyone knows, British air combat experience had provided lessons to the Americans for years, but only recently have historians determined that some of the important pronouncements of the manual were contrary to British aviation constitutions. The British did not use the three-tier priority system of tactical aviation (first, air superiority; second, interdiction; and third, close air support). Flexibility of command was more important to them, and establishing formal priorities contradicted flexibility. The three-tier system was invented in Washington, not in Africa or elsewhere in the field.

During the remainder of the war, the American military employed neither the three-tier system nor the coequality principle in any systematic fashion. One has a difficult time imagining a two-star general such as O. P. Weyland, commander of XIX Tactical Air Command, as coequal to Lt Gen George S. Patton, commander of the Fifth Army. Evidence of such a personal nature is difficult to validate, but a careful investigation of the Patton-Weyland relationship suggests that FM 100-20 may have affected the atmosphere of air-ground relations. Nevertheless, careful study shows that Patton easily agreed to the independence and authority of his supporting air commander.

Perhaps Washington's strongly stated advocacy of aviation helped establish a more level playing field from the airmen's point of view, encouraging other ground commanders in Europe to repress residual antipathy to their air support specialists. Perhaps FM 100-20 aroused the ire of ground leaders, driving their arguments underground only to surface in later antagonisms. The effectiveness of ground-air aviation operations really came from the most fundamental factor of the human situation—good personal relations and fellowship.

The leading airman in Europe, General Spaatz, had already established the model for good air-ground cohesion. The model is as viable today as it was 60 years ago. Because of his efforts, airmen had good working relationships with Eisenhower and top theater staff officers. Those relationships were based on good service, not on pronouncements of principles, politically correct tactical doctrine, or a demand for

equality. It is time for airmen to investigate more closely the more carefully recorded accounts of events in northwest Africa in the first year of American combat experience there. The early phases of combat are most fascinating for lessons learned at a time when problems of pandemic proportions surfaced to complicate command direction. The experience should be valid in Gulf War analysis as well as future combat situations.

Notes

1. Field Manual 100-20, *Command and Employment of Air Power*, 23 July 1943, 1.
2. Wesley Frank Craven and James Lea Cate, eds, *The Army Air Forces in World War II*, vol. 2, *Europe: Torch to Pointblank, August 1942 to December 1943* (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983).
3. Air War Plans Division Plan 1, *Munitions Requirements of the Army Air Forces* (Washington, D.C.: Government Printing Office, 12 August 1941, copy at AF Historical Research Agency [AFHRA], Maxwell AFB, Ala.).

Getting Together

Tedder, Coningham, and Americans in the Desert and Tunisia, 1940-43

Vincent Orange

Arthur Tedder, who would become one of World War II's great commanders, arrived in Cairo on 10 December 1940 as a newly appointed acting air marshal to serve as deputy to Air Marshal Sir Arthur Longmore, head of Middle East Air Command.¹ Longmore was recalled to London five months later and, on 1 June 1941, Tedder's appointment as Longmore's successor was formally confirmed. He was to become a substantive air marshal. "Cooperation, sound administration and flexibility," wrote military historian Basil Liddell Hart, "were the keynotes of Tedder's air strategy and tactics."² And Tedder had the ear of the Royal Air Force's (RAF) two most important officers, both of whom had earned the respect of Prime Minister Winston Churchill: Air Chief Marshal Sir Charles Portal (chief of the Air Staff) and Air Chief Marshal Sir Wilfrid Freeman (vice chief, responsible for the day-to-day running of the RAF, and Portal's closest service friend).

American Aid Essential

Even before he arrived in Cairo, Tedder realized that neither Britain's aircraft industry nor her merchant fleet would be able to supply him with the modern fighters, bombers, and transports he needed. American aircraft would be essential for survival, let alone victory, in the desert war. Therefore, intimate relations with Americans would also be essential. Although getting together with them—and still more, staying together—would prove as difficult as making and maintaining a marriage, he accepted as a working principle Dr. Samuel Johnson's dictum that "Marriage has many pains, but celibacy has no pleasures."³

Tedder favored an expedition mounted from Egypt early in 1941 to help Greece resist a German invasion, even though the British faced certain defeat there and risked losing all the gains made at Italian expense in the desert. As he later recalled, "one factor was particularly strong in my mind, and that was the possible effect on the United States and their attitude towards us if we went back on our guarantee to Greece. I knew how important it was that nothing should endanger the programmes for the supply of munitions, and particularly aircraft, plans which were being very actively drawn up, and which might very well fall through if the United States lost their faith in us."⁴ Without that "faith," the Anglo-American marriage would fail, and a celibate Britain would lose the war.

Tedder welcomed President Franklin Roosevelt's announcement in August 1941 that a military supply airline had been created as a practical means of moving desperately needed aircraft and cargo across the Atlantic to West Africa and on to Cairo. It was operated by Pan American Airways for the War Department, but Tedder soon found that airline to be so eager to pursue its own profit and to exclude British Overseas Airways from the African route that his conduct of military operations was seriously harmed. Civilian minions of Juan Trippe, the notorious ruler of Pan American, educated Tedder so well that he could get along with almost *any* Americans for the rest of his career, let alone the war years. Moreover, Tedder's distrust of Trippe's agents and their methods was widely shared in Washington. For example, Secretary of the Interior Harold Ickes considered Trippe "an unscrupulous person who cajoles and buys his way." He was so devious, recalled one airline chief, that if the front door was open, he would go in by a side window. And Adolph Berle, the State Department's aviation expert, declared, "I do not trust Pan American farther than I can see it." Nevertheless, it was the only airline carrying the American flag abroad before Pearl Harbor—and Pan Am had helped camouflage war preparations by building bases in the Pacific, South America, and West Africa. Tedder resisted Pan American valiantly, but neither the Air Ministry nor British civil aviation authorities matched his resolution.⁵

GETTING TOGETHER

During 1941 American airmen arrived to help erect, repair, and maintain American aircraft. They were also to build airfields. They sympathized with Tedder over Pan American's brazen self-regard and, inspired by the unfailing good humor of RAF ground crews even during sandstorms when everyone carried on working "with a grin on his face," were tireless in all practical matters. The Americans also admired the Brits' ingenuity. "I have seen airplane repair shops where they are going ahead with the job," reported Brig Gen Elmer E. Adler in November 1941, "and I will be damned if I have been able to discover more than a few hand tools in their possession, but they still roll out the ships."⁶

Unfortunately, the Americans also expounded their views on grand strategy in these pre-Pearl Harbor days, explaining to Tedder how he should conduct operations even though their personal experience of current warfare was at that time nil. In a letter to his wife, Tedder noted how confidently they "could lay down the law about things of which they knew next to nothing." He added, however, "I did my best, with an effort, to appear duly interested and impressed." This capacity for restraint would be rewarded after Pearl Harbor and Clark Field. "The only bright patch in the clouds," he later recalled, "was that the Americans openly said that they would no longer go about telling us how to do our job." They were "not quite so convinced now that they knew all about everything. This, at least, was a relief." By refraining from crowing over a humiliated partner, Tedder earned (as in marriage) gratitude and future influence.⁷

During 1942 it would be the Americans, not the British, who won Tedder's battles for him on the Pan American front. The War Department canceled Pan American's African contracts, "militarized" its bases and ferrying service, and set up an Air Transport Command equipped with aircraft leased to 11 carriers. Pan American's African network disappeared in December. Tedder never forgot these battles, which confirmed him as a faithful (though not uncritical) partner to his American allies for the rest of his life.⁸

At the end of June 1942, Maj Gen Lewis H. Brereton brought a small American air force to the Middle East. Nominally, his contingent was independent, but actually it

fought under British direction and was carefully mixed in with RAF squadrons until it was sufficiently experienced to operate on its own. Tedder's method worked the more easily because in flying skill, pure and simple, the Americans were already excellent. "They are learning from us," he told Portal in October, "and we are learning from them. I was glad to hear this from both sides." British airmen were already benefiting from service alongside Australians, New Zealanders, and South Africans, so the arrival of Americans only enriched the mixture further, making of Tedder's air force a truly international weapon. Brereton and his men adjusted to two novel situations: they had never before served under either a foreigner or a theater airman.⁹

Brereton later admitted to Roderic Owen, Tedder's first biographer, that "we were a mixture of brass and humility and we didn't like being told too much what to do, even when we didn't know how to do it." To his own surprise, however, Brereton found himself "100 percent sold on Tedder from the word go." He had expected "a sort of stuffed shirt, or something; you know the sort of traditional idea we Americans are supposed to have about you British." Tedder also won over Brereton's men, whom he spoke to at Lydda in Palestine (now Lod in Israel). "One often heard a lot of sentimental stuff about the British and Americans being first cousins and even brothers," he said. "This is bunk. You are a pack of goddam [sic] Yanks. You think you speak English, but you don't. You dislike English food, but your own only *looks* better. You don't like being here, and I don't either."

All of this doubtless came as a refreshing blast to these Americans after having been exposed to plenty of hot air about the obligations of the two greatest democratic nations to oppose fascist aggression, though Tedder went on to make this very point in his own blunt manner: "We're only here because we both believe certain things are worth fighting for, so let's get on with it." When he finished, recalled Brereton, "they were all sold on him, no doubt about that. He didn't talk down to a man. There was never anything in his attitude to indicate that he thinks himself superior to anyone else or to make us feel we'd been in the war for only two months. After that, I always had to let him know when I was going out for an

GETTING TOGETHER

inspection and as like[ly] as not he would come too. He got around to every American unit damn near as often as I did."¹⁰

One problem agitating Tedder in September 1942 would never be solved, from a British point of view, during or after the war. "All the Americans are paid at a most extravagant rate," he complained to Portal. "Their ideas of rations, comforts and amenities are also extravagant compared with our standards." Having the money to pay whatever was asked for supplies and services in Egypt or Palestine, Americans either left nothing for their "cousins" to buy or encouraged local merchants, male or female, to raise their prices beyond British pockets. Consequently, "there are the makings of very bitter feelings on the part of our own troops." Tedder went on to tell Portal that "the Americans do not appear to have the first idea regarding economy in the use of air transport. They use DC-3s quite indiscriminately for wholesale transport of canned drinks and foods and other luxuries and for occasional joyrides by American Generals and whatnots. Whether we will ever be able to educate them remains to be seen—I am afraid I doubt it." Thus far in the war—and, indeed, thus far in his career—"economy of effort" had been for Tedder a necessity elevated to principle, given the paucity of equipment available to the RAF. From this time on, however, the astounding profligacy of American production (and methods) would "educate" him. He would not be reluctant, personally or professionally, to enjoy either.¹¹

Tedder

On 9 November 1942, Tedder received the ultimate American accolade: an appearance on the cover of *Time* magazine. "Tedder of North Africa" was made the subject of a laudatory profile—although it did describe him as "a pale, thin gremlin." Operation Torch (the Allied landings in Northwest Africa led by Lt Gen Dwight D. Eisenhower) had just begun, rapidly bringing to a head questions about command and supply of air forces and coordination with land and sea forces which this gremlin had been pondering for the past two years.

What were these questions, and why was Arthur Tedder invited to answer them? Until December 1940, he had not

served in North Africa since 1918 and his record between the wars suggested "a man of nuts and bolts" (in Churchill's words) who lacked the charisma believed necessary for wartime command.¹² Moreover, he was a university graduate who had published a book. These were uncommon feats among senior officers of his generation and not widely regarded as useful to a battlefield commander. Worse still, recorded one contemporary, Tedder was "the sort of chap who always wore his hat slap on the middle of his head." He had not been a famous fighter pilot in the First World War, he made no dramatic or pioneering flights after that war, and no boisterous, endearing anecdotes were told about him. "I wanted to be liked," he said once, "but I wasn't much."¹³ Even his appointment to Cairo was as second choice to a now-forgotten officer, Owen Tudor Boyd. En route to Cairo, the unlucky Boyd's navigator inadvertently landed him in Sicily instead of Malta. Almost a year later, Tedder's position was still so insecure that Churchill invited Wilfrid Freeman to replace him. Freeman refused, as he put it, to play either Judas or Brutus to his friend and protégé.¹⁴

Boyd's bad luck would also offer Air Vice Marshal Arthur Coningham¹⁵ an opportunity in July 1941 when Tedder decided to get rid of Air Commodore Raymond Collishaw, an outstanding Canadian fighter pilot of the First World War who commanded what became the famous Western Desert Air Force. In Tedder's opinion, Collishaw was too anxious to attempt every task in daily operations himself and too often foolishly optimistic about what could be done with a handful of men and aircraft. Tedder could reasonably suppose that Coningham would avoid these mistakes, but so too might several other officers better known to him.¹⁶

Coningham

In fact, Coningham was not Tedder's first choice; an officer named Leonard Slatter was. But Slatter, already serving in the Middle East, was anxious to return home to attend to some domestic upset and, without much enthusiasm, Tedder asked for Coningham instead. Slatter, who went on to enjoy an entirely honorable career which is now entirely forgotten,

received a single passing mention in Tedder's well-known war memoirs, *With Prejudice*. Coningham, in contrast, came to be regarded by Tedder (in Liddell Hart's words) as "the real hero" of the desert war.¹⁷ It is worth remembering that both Tedder and Coningham got into that war (where they established their reputations) as second choices. According to Napoléon, good luck is the quality above all to look for in generals—and these RAF officers were certainly lucky.

Tedder's lack of enthusiasm for Coningham was soundly based on three facts: he had had nothing to do with fighters since the end of the First World War, he had not served in Egypt for 15 years, and he had never attended Staff College. Coningham was proud of his academic ignorance (and the more famous he became, the more often he boasted of his ignorance). In this respect, he was indeed unique among RAF commanders of the Second World War. A compelling reason for Coningham's selection was probably provided by Air Chief Marshal Sir Edgar Ludlow-Hewitt, a wise and grim man, not given to praising quickly or highly. As head of bomber command, he had commended Coningham (then commander of 4 Group) to Portal with unusual warmth. If Portal passed this commendation on, his friend Tedder was no doubt favorably impressed. Coningham's distinction as an early "bomber baron" thus cleared a path for him to earn far greater distinction as a master of tactical airpower.¹⁸

Personally, Coningham was everything Tedder was not. Famous and much-decorated for his feats as a combat, air display, and long-distance pilot, Coningham was famous also, within the RAF, for his place in society yachting circles and his prowess at polo, golf, and other sports. Not a man to wear his cap dead straight or to be described as "a pale, thin gremlin," Coningham was a man of style and presence. "Big, masculine, confident," as one air marshal recalled, "he had an easy, attractive personality, a ready and colorful flow of talk." Tedder soon learned, however, that Coningham's flamboyance masked a strong, self-regarding personality. His "outstanding characteristic," recorded another air marshal, "lay in his ability to keep his own counsel. I never felt I really knew what was going on behind his dark brown eyes." In other words, Coningham was a careful *listener* (as top commanders usually

are), taking in what was said and readily using what he heard to shape his own ideas.¹⁹

A Bit of Luck

Both Tedder and Coningham had the great advantage of being *second generation* commanders in North Africa. They never faced overwhelming enemy strength, as unluckier commanders did elsewhere during the early war years in Poland, Scandinavia, France, and Russia. Military students have known since antiquity that it is unwise to command defending forces at the outbreak of war. Ill-trained men, inadequate weapons, insufficient supplies, untested doctrine regarding the effective use of resources, and the aggressor's careful preparation are likely to bring defeat and therefore dismissal. But if the defending state manages to avoid conquest, there may come a time when well-trained men, adequate weapons, sufficient supplies, practical doctrine regarding the effective use of resources, and the aggressor's mistakes will bring victory and therefore promotion. Although the latter commander may be no more able or diligent than the former, he will certainly be better rewarded, as Tedder and Coningham found in North Africa. It may not be fair, but it is what happens.

Raymond Collishaw, for example, having been sharply criticized in Tedder's memoirs, responded six years later in his own memoirs by completely ignoring (save for two passing references) the man under whom he served for eight hectic months.²⁰ Collishaw had good reason for his attitude. He and his staff had recognized in 1940 the basic strategy of desert warfare—that it was “a struggle for airfields and ports.” Air Marshal Sir Peter Drummond (Tedder's deputy) would echo this truth in October 1943. “Whoever held the airfields on the shores of the Mediterranean,” wrote Drummond, “could pass his own ships through that sea with reasonable safety and could forbid the route to the ships of the enemy.”²¹

Collishaw identified the problems involved in combining the punch of fighter and bomber forces (between themselves and between them and the ground forces) and tried to solve them. He did his best to establish secure and reliable

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communications, fix realistic bomb lines, and rank targets in order of priority. Wherever possible, forward landing grounds were laid out swiftly, kept clear, guarded vigilantly, and amply supplied with water, food, and fuel. (In practice, this proved a crippling reservation.) An attempt was made to provide squadrons with their own transport, and they tried to carry their own workshops with them. They exercised their own pilots regularly, knowing that training facilities were negligible.

Having spent five years commanding a shoestring air force in Egypt, Collishaw was perfectly well aware that strength must not be wasted (after the Italian fashion) on standing patrols—wearing out men and machines, and consuming precious reserves of fuel and spares. Above all, he understood that air superiority was to be obtained and maintained before any other task—even close support for troops in advance or retreat—could be attempted with any reasonable hope of success. He had no radar, a poor radio network, and much less signals intelligence than his successors later enjoyed. Moreover, he commanded a motley force, composed largely of what the historian John Terraine rightly called “assorted antiques.” Nevertheless, the RAF under Collishaw showed plenty of tactical ingenuity despite depending on equipment that was at best obsolete. They forged excellent relations with their Army commander (Lt Gen Sir Richard O'Connor) and concluded a triumphant campaign against Italians who had an apparently overwhelming numerical superiority. Had it not been for the Greek diversion, O'Connor and Collishaw might well have captured Tripoli in the spring of 1941, ending the desert war and obliging Gen Erwin Rommel to further his ambition elsewhere.²²

Rightly or wrongly, Tedder decided that the Canadian had outlived his usefulness in the desert and replaced him with a New Zealander. Tedder and Coningham grew to like and respect each other, helped by having different personal qualities yet similar opinions about proper methods of command. After nearly two years of working together, Tedder seized an opportunity in June 1943 to commend him to Gen Henry H. Arnold, head of the US Army Air Forces (USAAF). A report issued on 6 May by the Intelligence Service in

Washington "amazed" Tedder: "The writer appears to have completely misunderstood the Army-Air organization and the relationships between me and [General Sir Harold] Alexander and between Coningham and [Lt Gen Sir Bernard] Montgomery. The great majority of his statements cover the tactical battle and impute to me tactical policy and action which derive from Coningham; in fact, in nine cases out of ten where he uses my name, the name of Coningham should be used." This is a letter that vividly illustrates both Tedder's generous spirit and his high regard for Coningham. Arnold replied with uncharacteristic humility on 5 July: The errors, he wrote, "which you were kind enough to point out so clearly, are regretted."²³

Coningham's mastery of "the tactical battle," which had been established by the end of the Tunisian campaign, was founded on his personal experience as a squadron commander during the last months of the First World War. By the time of the Armistice, he recalled in 1946, fighters and fighter-bombers were cooperating closely with tanks and leading the Allied advance, making the German retreat "expensive and chaotic." He emphasized the importance of this period "because the principles there thrashed out have remained constant, only their degree and their application changing in accordance with the technical advance of aircraft, weapons, modern aids and the method of control." The command of air forces and the concentration of effort in support of land forces in November 1918, he believed, compared well with modern practice. Contact between soldiers and airmen was very close, and mutual appreciation cemented both forces into a team. With those memories in mind, much of Coningham's best effort in the Second World War was devoted to restoring that "mutual appreciation."²⁴

Tedder had told Coningham that his first task, on going out to the desert in July 1941, was to "get together" with the army commander. This was, as Coningham wrote after the war, a decision of "fundamental importance and had a direct bearing on the combined fighting of the two services until the end of the War."²⁵ His opinion is supported by that of Field Marshal Lord Michael Carver who, in evaluating airpower in the Second World War, wrote, "by far the most significant

contribution [to victory] was made by the tactical air forces in support of the army."²⁶ Cooperation, however, whether between or within services, is not to be achieved any more easily than a successful marriage. It requires time, goodwill, and constant attention far more than rules and regulations. Essential though these are, most systems can be made to work if goodwill is present. Likewise, all systems are easily thwarted if it isn't. Much depends, and always will, upon the personalities of the individuals concerned.

The army responded to Coningham's initiative and agreed to set up a joint headquarters when the Eighth Army was formed in September 1941. In that same month, Churchill ruled (in response to Tedder's arguments, relayed to him by Portal) that ground forces must not expect "as a matter of course" to be protected against aerial attack. "Above all, the idea of keeping standing patrols of aircraft over our moving columns should be abandoned." Hopes of winning and keeping air superiority would be undermined by this "mischievous practice." Whenever a battle was in prospect, the army commander was to "specify" to the air commander the tasks he wanted performed, both before and during the battle, but the air commander had to decide how best to carry them out.²⁷

These fundamental rulings were to be widely publicized and vigorously enforced by Coningham, with Tedder's wholehearted support, during the rest of the desert war, often in the face of angry or bewildered opposition from soldiers of all ranks. By November 1942, when Operation Torch began, these rulings had long been accepted (however reluctantly) by the Eighth Army. Unfortunately, they were not conveyed to the commanders of that operation, whether British or American.²⁸ Failures in the transmission of information from the desert back to Britain and on to the United States are typical of an ancient theme in military history: *the reluctance of tribes, nations, and armed forces to learn except from their own experience*. The cost in lives and material has been so heavy and the instances of defeat suffered or victory delayed so numerous that more serious attention is nowadays paid to "lessons learned" than used to be the case.

A Joint Army-Air Directive

Meanwhile, on 30 September 1941, following exercises in which Coningham took the keenest interest, a joint army-air directive on "Direct Air Support" was issued. The directive enunciated two aspects of air support: *defensive* (to impede or halt the enemy's ground attack in general and dive bombers in particular) and *offensive* (to destroy ground forces and so permit a counterattack). For defensive support, the most suitable targets (selected by air reconnaissance) must often lie out of the sight of soldiers, and Coningham already realized that soldiers must therefore be persuaded to trust his decision that hitting these targets would help them—eventually, if not immediately. Similarly, he was aware of the need to persuade soldiers to accept that the only constant protection against dive bombers was their own ground fire. There would never be time to summon fighters once an attack had begun, and although Coningham was determined to make soldiers understand that standing patrols were completely out of the question, he would order fighter sweeps at times when dive-bomber raids were thought most likely. For offensive support, his light bombers could certainly be effective when attacking at low levels, but soldiers must realize that such attacks were only feasible when surprise was likely, expected resistance was slight, and the target (never within 500 yards of friendly troops) was clearly visible. These conditions would not, of course, survive the first explosions, and any degree of organized, determined ground fire would quickly exact a heavy toll of light bombers. Friendly ground forces advancing beyond the range of their own artillery support could be assisted, but whenever artillery support was available, Coningham consistently withheld his light bombers.²⁹

The directive required an "Air Support Control," to be established under Coningham's personal direction. It comprised army and RAF radio operators in regular contact with their respective fighting units and with each other in order to help him "meet, modify or reject" requests for air support. Accepted requests were passed via the RAF signal system to an appropriate airfield for action. The ground commander was informed of the intended arrival time and the

strength of the support under way so that he could be prepared to take advantage of it. Airmen and soldiers, acutely aware of the need for an efficient recognition system, gradually devised one based on colored lights and ground signs. But the fact that both sides used each other's captured equipment, especially trucks, posed a problem that would never be entirely solved. Specially trained army officers, known as air liaison officers, began to arrive in the desert in December 1941. They explained air methods to soldiers and army methods to airmen and, as they gained experience and confidence, they also explained why things went wrong and how best to right them.³⁰

Operation Crusader

The many muddles on the ground and in the air throughout Operation Crusader (a major offensive launched on 18 November 1941 to drive the enemy out of Cyrenaica) gave these liaison officers plenty to do. For Coningham, Crusader had begun a month earlier, on 14 October, with a campaign intended to win air superiority and impede the enemy buildup of weapons and supplies. It was also intended to locate enemy formations, particularly armored divisions; to photograph airfields regularly; to identify defensive works, gun pits, petrol, ammunition dumps, and minefields; to survey roads and tracks, noting the traffic using them; and to check the shipping that was passing through enemy ports. Then came six days of intensive effort (13-18 November) while the army concentrated and moved forward. During these days, Coningham's squadrons proved remarkably successful in preventing the Axis air forces from observing this concentration despite the fact that many combat-hardened British pilots had been lost in Greece or Crete and neither their replacements nor the survivors could match the Germans in flying or fighting skill. Greater numbers of Hawker Hurricanes and Curtiss P-40C Tomahawks compensated to some extent for their inferiority to the latest Messerschmitt Bf 109 fighters. Nevertheless, Coningham was obliged to withdraw squadrons from operations for further training and to replace several inadequate commanders with

men from England who were better versed in modern aerial combat.³¹

Operation Crusader became a long and confused battle. It ended with Eighth Army holding a position known as the Gazala Line, some 35 miles west of Tobruk, running southward from the coast to Bir Hacheim. During four anxious and strenuous months, Coningham's powers of command were tested to the utmost as his inexperienced and inadequately equipped squadrons struggled to assist ground forces that were themselves inexperienced and underequipped. Worse still, these ground forces were in many cases very poorly commanded. Stinging defeats offset fleeting victories; but if it is true (as military history often suggests) that defeat is a better teacher than victory, then Coningham was well taught during these months. As late as October 1941, most pilots were still, in Tedder's words, at a "village-cricket" (i.e., amateur) level of performance.³² By the end of Crusader in February 1942, Coningham had coached them to a professional standard and earned Tedder's respect as an alert, calm leader. He had already earned press approval, both British and American. "A New Name Appears," headlined the London *Star* on 20 November 1941, while *Time* magazine summed him up in its inimitable style on 1 December as "a dark, strong-faced, deep-voiced, wise-cracking, non-smoking, six-footer from New Zealand. He has a reputation for talent in co-operation—not a notable talent of previous RAF commanders in the Middle East."

Achilles' Heel

Coningham's undoubted talents did not, however, include a sure grasp of logistics. As defined by Air Marshal Sir Kenneth Hayr, logistics is "the science of planning and carrying out the movement and maintenance of forces."³³ Tedder gradually recognized Coningham's weakness in this vital area and, in February 1942, provided him with an expert assistant in Air Commodore Thomas Elmhirst. Rommel had less grasp than Coningham and, better still from an Allied viewpoint, had neither a Tedder above him nor an Elmhirst at his side to see that he gave it priority attention. "Without logistics," wrote

Hayr, "a force has no military utility. Of course a force needs eyes, ears, and teeth, but logistics represents the heart, lungs and lifeblood: it is the life-support system without which the whole force would grind to a halt." Although Hayr was writing about the recent Gulf War, his words apply equally to all wars. "Tactics," he concluded (and as the Western Desert and Tunisian campaigns demonstrated), are "the art of the logistically possible."

Elmhirst began the war in 1939 under Coningham's command and would end it there in 1945, a record of which he was proud for the rest of his life. "On his arrival in the desert," recalled Air Chief Marshal Sir Kenneth Cross (at that time Coningham's most outstanding fighter leader), Elmhirst "quickly created order where there had been disorder, supply where there had been shortage, confidence where there had been doubt and, above all, a belief amongst those doing the fighting that here was a man who understood what they needed."³⁴ It was Elmhirst who reorganized the Western Desert Air Force into mobile fighter, bomber, and reconnaissance wings, all with their own transport. Happily, a friendship grew between Coningham and Elmhirst, to the great advantage of both, for neither could have done the other's job. Without Elmhirst's management skills and absolute devotion, Coningham's exceptional powers of inspiration, mastery of battlefield tactics, and ability to act sensibly in a crisis might not have kept him in high command all the way from Cairo to Berlin.

Another friendship developed with George Beamish, Coningham's senior Air Staff officer. Like Coningham, Beamish had been a top-class sportsman (in rugby, golf, and boxing) and was also totally unflappable. Having escaped at the last moment from the Crete fiasco, nothing that happened in either the Western Desert campaign or the Tunisian campaign, except for a shortage of tea or pipe tobacco, struck Beamish as really serious. He would gently rebuke Coningham and Elmhirst for errors in the style and grammar of orders issued, even at the height of battle. This serene composure appealed greatly to Coningham, who was himself (as Elmhirst recorded) "at his best on days of gloom."³⁵

Coningham, Beamish, and Elmhirst, linking operations and logistics out in the desert, were supported back in Cairo by an excellent team. Presided over by Tedder, the team managed vital personnel, administrative, technical, repair, and maintenance problems. Unless these were solved as they arose, operations would have been grievously affected, however perfect the doctrine governing the employment of aircraft or relations with other services and allies. No man, least of all a commander in wartime, is an island, able to function alone. He needs, and Coningham got, plenty of help.

Tedder's job was to command *in chief*. That is, to consider strategic options in consultation with his opposite numbers in the navy and the army. He had also to deal with several Air Ministry departments and keep open his private line to Portal, chief of the Air Staff. And every day he had to oversee the performance of both his Cairo staff and Coningham's air force. Not surprisingly, Tedder eagerly seized every good reason (and every shaky excuse) to escape from his office into the desert to see for himself what was going on and so enjoy, however briefly, the exhilaration of being "at the sharp end." While there, he practiced one of the more difficult arts of command. Discussing matters with Coningham, he would encourage, congratulate, advise, and, on occasion, criticize, but he would try not to interfere. It was Coningham's job to command *in the field*, and he was entitled to wholehearted support unless or until Tedder felt that serious mistakes were being made, in which case prompt dismissal should follow.

Axis Problems

Individuals on the Axis side may well have matched or surpassed any of these men in personal *ability*, but they were not welded into a stable *team*. In addition, whatever problems RAF officers had with their masters in London, with their colleagues in the army and the navy, or later with their American allies, they were never as insoluble as those which German and Italian airmen faced when dealing with Rommel in North Africa or Axis authorities in Berlin and Rome. From the viewpoint of Luftwaffe commanders, their situation worsened immeasurably during the Tunisian campaign. They

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were perplexed, harassed, and demoralized by the irrational antics of Adolf Hitler and his courtiers to a degree beyond the worst imaginings of the Allied commanders.

This absence of coordinated effort proved fatal. To choose a critical example from the desert war, the Luftwaffe commander (General Otto Hoffman von Waldau) found it even more difficult than Coningham did to get accurate, detailed information on a regular basis from army commanders about the position of friendly ground forces. Axis forces therefore received far less support than von Waldau had available. They were more often bombed in error than were British forces, and attempts to coordinate ground and air attacks were perfunctory. Rommel actually began his fatal invasion of Egypt late in June 1942 without even *informing* von Waldau, let alone waiting for him to move his airfields forward. This decision prevented the Luftwaffe from harassing the British retreat and exposed Rommel's own forces to constant aerial attack. Above all, it denied the Luftwaffe commander the opportunity to generate the *panic* upon which the success of Rommel's invasion depended.

Even though Coningham and his men fought skillfully and stubbornly in this crisis, they did no better than they should have, given Rommel's mistakes, to say nothing of a steady flow of reliable intelligence about Axis strength and intentions from photo reconnaissance, prisoner interrogation, the tapping of radio messages, and the decoding of signals traffic. In planning operations, Coningham was accurately informed about the Luftwaffe's order of battle, airfield serviceability, fuel stocks, casualties, and replacements. According to an official history, "British forces in North Africa were supplied with more information about more aspects of the enemy's operations than any forces enjoyed during any important campaign of the Second World War."³⁶ In RAF uniform, von Waldau might well have compared favorably with Coningham as an air commander. There can be no doubt that he would have welcomed the steady, powerful support Coningham received from London, via Tedder in Cairo.³⁷

After the fall of Tobruk in June 1942, Tedder told Portal: "If only our friend Rommel would run true to form and come bullocking on regardless, there might be a chance of knocking

him right out"—which is what he did and what was done.³⁸ Rommel had not grasped, even at that late date, the need to protect his sea supply lines from Malta's attacks. Nor had he grasped the damage done to his land supply lines by Coningham's attacks. Even before the capture of Tobruk, Rommel had wasted nine days in June, using his air force to pound Bir Hacheim, a fortified position held by French troops at the southern end of the Gazala Line. Those days so sapped the Luftwaffe's strength (recorded a Luftwaffe historian in March 1944) that it proved unable to exploit the opportunity provided by the British retreat from Gazala to El Alamein, a distance of nearly 350 miles. During the three days that it took to execute this retreat, the Eighth Army lost only six soldiers killed by air attack.³⁹

At the end of June, between Gibraltar and the untried defenses at El Alamein (a distance in excess of 2,000 miles), Malta was the sole British base. This "unsinkable aircraft carrier" was anchored a mere 60 miles south of Axis airfields in Sicily. Hitler's decision on 23 June not to attempt its conquest (planned in Operation Hercules) may have been one of the most fateful of the entire war. Despite their evident skill and determination, Britain's army, navy, and RAF commanders in the Mediterranean could hardly have prevented a conquest of Malta had it been attempted with all the Axis power available before August 1942. "I ought to have known," lamented Field Marshal Albert Kesselring after the war, "that a tactical success [such as Rommel had achieved in reaching the Egyptian frontier] can only be exploited and sustained if the supply services are functioning faultlessly."⁴⁰ He ought indeed to have known, and so ought the entire Axis war management machine; it is a point that has decided wars since ancient times.

In February 1940 Rommel had asked a veteran general of the First World War for advice on the best way to command a panzer division. "You'll find there are always two possible decisions open to you," the veteran told him. "Take the bolder one—it's always the best."⁴¹ Luckily for the Allies, Rommel (backed by Hitler) followed this advice and thereby lost the Axis powers a royal chance of victory in the desert war. Tedder, a former staff college lecturer (the very model of an

officer-type loathed by Rommel), might have commented: "There's a lot of truth in that principle. However, you must ask yourself not only where you'll be if the bold decision works, but also where you'll be if it doesn't." Rommel's answer to the latter part might have been: "In front of powerful defenses at El Alamein, facing an army with secure supply lines, pouring in more of everything every day, whilst my own lines are very long and suffering constant attack by air and sea." In other words, commanders should temper boldness with forethought and pay attention to logistics. Tedder and Coningham did; Rommel and Hitler didn't.

With Tedder's approval, Coningham had made it his personal business to appoint subordinate commanders, promising them the same absence of interference, the same positive support, and the same threat of speedy removal in the event of failure that hovered over his own position. It would not be until August 1942 that these methods took firm hold in the British Eighth Army. Churchill then asked Tedder (who had temporarily earned his confidence) what should be done about the chaotic leadership of that army. ("Chaotic" is not too strong a word; orders to senior officers were regarded, by giver and receiver alike, as no more than a useful basis for discussion.) Tedder replied that the selection, promotion, and removal of commanders should in future be made on the basis of *performance* instead of seniority, friendship, or regimental or family connections. The advent of General Bernard Montgomery ensured that Tedder's advice was taken.⁴²

Montgomery

Which brings me to the partnership between Tedder and Coningham with Montgomery. Like those air marshals, the general arrived in the desert at short notice as a second choice and there took his chance to make a name. By August 1942, less than a year after its formation, the Eighth Army was in need of its fifth commander (General Sir Claude Auchinleck having twice taken over when it became essential to sack, first, Alan Cunningham, and then Neil Ritchie). As commander in chief in Cairo, Auchinleck could not indefinitely continue to lead the field army. The choice fell

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upon Lt Gen William "Strafer" Gott, an experienced desert warrior. Tragically, Gott died when the aircraft carrying him to Cairo to assume his appointment was shot down. Montgomery was then summoned from England as the Eighth's sixth commander. At the same time, Churchill fired Auchinleck and replaced him with General Alexander.



Lt Gen Sir Bernard Montgomery

In the early days in North Africa, Montgomery worked closely with his airmen. Later, he was not so cheery with independent airmen; he saw them as subordinates. (Source: US Air Force)

As is well known, Montgomery became very mindful of airpower, perhaps more so than any other Allied general of the Second World War. On taking command, he immediately moved his headquarters to Coningham's. "From that moment," he later recalled, "we never looked back." It was, in fact, an obvious move, restoring a situation only recently changed. Auchinleck had separated army-air headquarters,

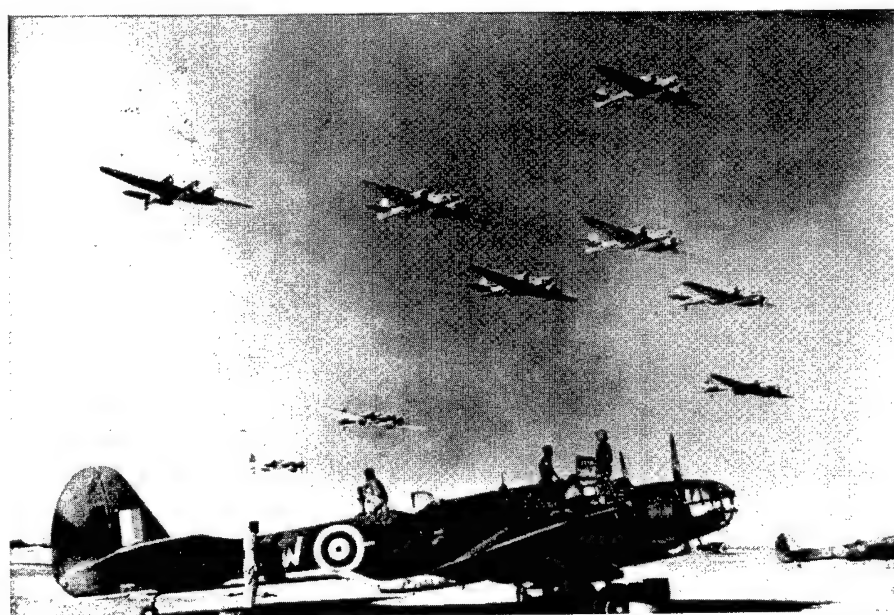
which had been together for most of the previous year, only under stress of the retreat to El Alamein. Coningham, left on his own, had discovered the ideal site for a headquarters at Burg-el-Arab. It was near the sea, had palm trees, fresh water, and an airstrip—and by desert standards, there were no flies. It was close to the only road through the desert, and good signals facilities were available.⁴³

Montgomery's early actions in seizing effective command of the Eighth Army delighted Tedder and Coningham. Sadly, their delight quickly changed to exasperation with his slow methods on the battlefield—unnecessarily slow, in their opinion, given Montgomery's overwhelming superiority in strength and detailed knowledge of Rommel's intentions and weaknesses. Exasperation ultimately became open contempt as they learned of the lies and evasions with which Montgomery attempted to enhance his own fame, and as they observed his preference for the company of "young and adoring acolytes" (Sir Michael Howard's words) who became old and adoring apologists.⁴⁴ After the Tunisian campaign, Montgomery steadfastly avoided regular contact with his fellow commanders (men who had the rank, character, and experience to argue with him).

No differences, personal or professional, that Tedder and Coningham had with American ground or air commanders came close to matching those they had with Montgomery. From Tunisia onward, these RAF officers and their American colleagues were always in complete agreement that Montgomery was socially impossible, a fact which greatly assisted them in resolving their own occasional disputes. "At least he's not Monty" became an acknowledged bottom line—and it kept the men talking among themselves. Tedder and Coningham recognized that Montgomery represented a strong British resentment of increasing American manpower, material, and hence influence over the direction of Allied strategy. Perhaps they privately resented the American influence too, but they were sufficiently realistic to accept it as an essential price of victory; Montgomery and his supporters never did.

Operation Torch

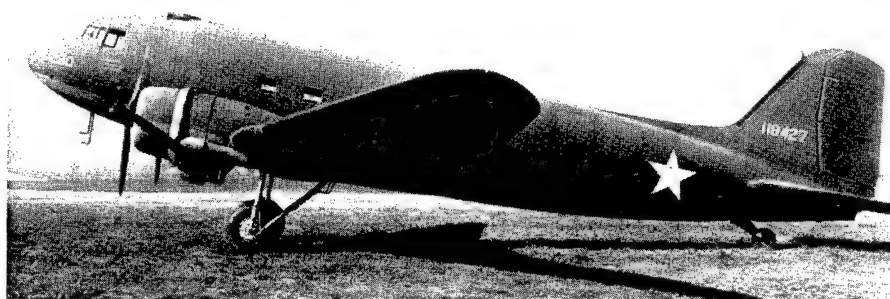
Operation Torch began on 8 November 1942, with Anglo-American landings on the coasts of Morocco and Algeria. The Americans intended to advance rapidly eastward and occupy Tunisia. The battle of El Alamein had just ended and the pursuit of Rommel, who was retreating westward toward Tunisia, had just begun. Hitler poured fresh German land and air forces into Tunisia before either the Allies or Rommel could get there. By December it was already clear that a long, hard campaign must be fought in that country. One effect of the need to prepare for Torch had been the delay in providing the Western Desert Air Force with the latest Spitfires, which would have replaced the obsolete Hurricanes and P-40Es or P-40F Kittyhawks. In addition, Coningham could have made good use of more long-range, heavily armed Bristol Beaufighters or Lockheed P-38 Lightnings to harass the retreating columns.



Martin Maryland

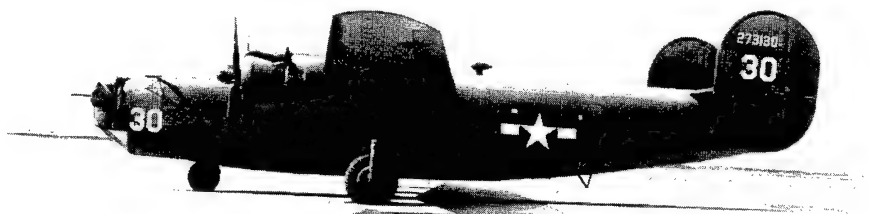
American planes, trucks, and tanks underwrote British success in the Western Desert. Heavily armed and very light, these Martin Marylands sped away to attack enemy targets in Libya. (Source: National Archives)

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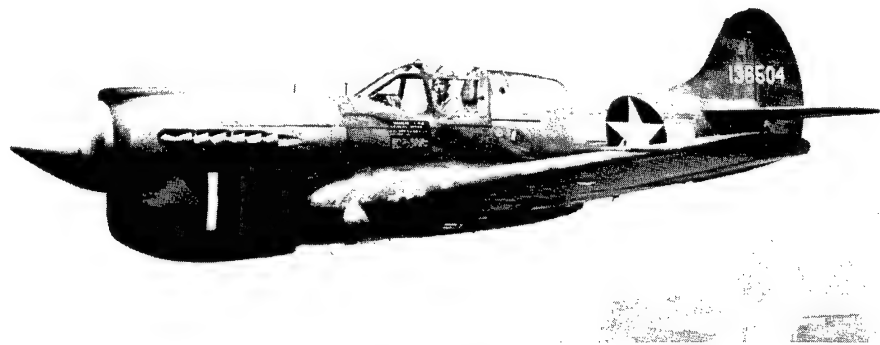
Douglas C-47

The C-47 served both British and US transport needs in North Africa. (Source: National Archives)



Consolidated B-24

The B-24 fought with both British and US forces in North Africa. (Source: National Archives)



Curtiss P-40

The P-40 served British forces in the Western Desert and US forces in Tunisia. (Source: National Archives)

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By December, on the other hand, the Ninth Air Force (formed under Brereton on 11 November to embrace all USAAF units in the Middle East) was providing a vital transport service and a "flying pipeline" of aviation fuel to the front. "On one day," noted Brereton, "forty-nine C-47s carried 48,510 gallons of gas from El Adem to Agedabia, a distance of 425 miles by truck and 250 by aircraft. The flight was completed in an hour and fifty minutes. It would have been a three-day trip for fifty-nine trucks." When Americans first arrived in the desert, Coningham had said he wanted them to "profit by all our mistakes and by our successes." He now spoke warmly to the British press about Anglo-American cooperation, which had become a major factor in operations. "We are a happy and I think competent family," he said, "and the result is an efficient machine."⁴⁵

The new campaign posed fresh challenges to Tedder and Coningham because it would be fought in a terrain totally different from that of the desert. A land only slightly smaller than England, Tunisia is full of forests and hills, with torrential, freezing cold rainstorms in winter, which had set in with a vengeance by December 1942. Tunisia is easy to defend against land attacks, demanding significantly different methods of making war (from those that had served both sides so well in the broad deserts stretching eastward to the Nile).

The war's first supreme commander, the American general Dwight D. Eisenhower, now made his appearance. His appointment reflected a massive, ever-growing American presence in men as well as material, and it greatly increased the importance of Washington as a center of opinion for RAF commanders to consider. Also in Tunisia, unlike in the desert, planners had numerous civilian noncombatants, many of



Spitfire

The British Spitfire was the Allies' best air superiority fighter. (Source: National Air and Space Museum)

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them French subjects, to consider, placate, or oppose. And not least of the problems encountered was a marked contrast between battle-hardened veterans coming from bitter conflict in the desert and inexperienced soldiers and airmen coming from training camps in the United States and Great Britain.

After a slow start in the Tunisian campaign, however, as in the desert campaigns, the Allies would enjoy command of the sea and air. They would also have an enormous advantage on land in numbers of troops, tanks, guns, and supplies of all kinds, especially fuel. In addition, they continued to receive a steady stream of detailed, accurate information about enemy plans, strength, and supply arrangements from the codebreakers in England who intercepted and deciphered Germany's signals traffic—even the most secret. Hard though the fighting was in Tunisia, the Allies were never in serious danger of defeat (as opposed to embarrassing setbacks). They had time to decide not only grand strategy for the rest of the war in lengthy conferences at Casablanca but also to consider how best to improve their methods of fighting. The Tunisian campaign proved to be an ideal training ground where earlier mistakes in Anglo-Franco-American relations and army-air cooperation could be identified and remedied. The Allies had complete confidence that ultimate victory was theirs. The campaign set a seal of approval upon the sensible methods of Tedder and Coningham, confirming their reputations and ensuring that they would enjoy high command for the rest of the war.

When Operation Torch began, airpower was neither independent nor centralized because senior army officers, both British and American, insisted on controlling their *own* airpower to provide local protection and deal with local problems. No American army had air-ground training before leaving the United States, and the plight of the British First Army was as bad (with less reason, for no notice had been taken of the combat-proven air support systems worked out in the desert). Gen William W. Momyer, commander of the American 33d Fighter Group at the time, recalled in 1982 his early unhappiness at the misuse of Allied airpower. His fighter group was committed almost exclusively to flying "umbrella patrols" over the front line, leaving the Luftwaffe free to

hammer Allied airfields undisturbed while Allied bombers attacked targets as far away as Sicily and Italy. Coningham, he said, was the man who "brought the thing together"; he was "probably the most knowledgeable British officer on tactical air operations, as a result of his experience in the Western Desert."⁴⁶

At a meeting in Casablanca, President Roosevelt and Prime Minister Churchill approved a new air organization on 26 January 1943. Tedder was to be the air commander for the entire Mediterranean region from his headquarters in Algiers, subordinate only to Eisenhower. Under Tedder would serve Lt Gen Carl A. Spaatz as air commander, Northwest Africa (with RAF officers Keith Park and Sholto Douglas commanding in Malta and Cairo). Three subcommands would be under Spaatz: Maj Gen James H. Doolittle would control heavy and medium bombers with their fighter escorts; Air Vice Marshal Hugh Pughe Lloyd would control general reconnaissance and fighters defending shipping and ports; and Coningham would specialize in air support for ground forces. Spaatz would have supply, maintenance, and repair resources under his direct control.

Coningham would share an advanced headquarters with Eisenhower's deputy, General Alexander, who commanded the operations of all three Allied armies in Tunisia. To each army was attached an air force whose commander was subordinate to Coningham and who directed his force in consultation with the army commander. Knighted in November and promoted to the rank of air marshal in January, Coningham "was the logical person to head the tactical air command" in the opinion of Lt Gen Elwood R. "Pete" Quesada, then a combat pilot in Tunisia. "There was just no doubt about it. We didn't have anybody that could even come close to him . . . his was the easiest of all the selections that had to be made."⁴⁷

This organization resulted from weeks of negotiation in the most difficult circumstances. A new and thus far unsuccessful campaign was being fought in the depths of a cold, wet winter in an unknown country by forces hurriedly brought together under commanders not known to their men or to each other. Airfields were few and inadequate, and no semblance of a combined headquarters existed. Communications were

practically nonexistent, except for an archaic telephone system, and the political situation, even from the perspective afforded by half a century of hindsight, defies cogent summary. But none of these grave problems actually generated the fiercest tension in Northwest Africa. That came when the western "torch bearers," struggling in trackless mud and acutely aware of their lack of success and heavy casualties at the hands of more battle-wise opponents, came face-to-face with the eastern "desert heroes" who had survived a prolonged and now clearly victorious campaign over those same opponents. The temptation for resentment on the one hand and condescension on the other was great and, because *Homo sapiens* is such a flawed creature, that temptation was enthusiastically indulged in many quarters.

Luckily, those who framed the new organization during that cheerless winter were men of superior caliber. Most served together for the rest of this war, and some helped fight the cold war which followed. Tragedy also played a part in strengthening bonds between Tedder, Coningham, and their American colleagues. Early in January 1943, Tedder's wife was killed in an aircraft accident while returning to Cairo from a visit to RAF hospitals and welfare centers in Cyrenaica. His eldest son, an RAF pilot, had already been killed on active service in August 1940. As for Coningham, both of his stepsons were serving and one would be killed in September 1944. Such matters ought not, perhaps, to affect decision making, but in fact they do. Eisenhower himself would be best man at Tedder's second marriage in October and, later, a conscientious godfather to the son of that marriage.

Air Commander Tedder

"For our money," recalled American major general Gordon P. Saville, "there had to be a British Air Commander. All of us air people would have been glad to work under anyone sponsoring the British system of airpower, regardless of who the individual was. Imagine our collective gratification when the guy who we'd been glad to take on as a matter of principle turned out to be a guy who could actually tie things up. Tedder was the man who kept airpower as airpower. And

Eisenhower was prepared to be sold on that, by a man like him." Eisenhower certainly valued Tedder's ability and quickly warmed to his personality. "Neither he nor I were impressed with bluster," commented Eisenhower. "Tedder agreed that if prestige was to depend on pomp and flags and bad temper, then it was just too bad. And he believed in tact, whereas some of us were inclined to think that tact was to be despised. Of course, tact, to be true tact, isn't apparent. Tedder disguised most of his under cover of gentle sarcasm." Doolittle was less easily convinced. "At the time, in consummate selfishness and egotism, I felt that the appointment of Tedder was unnecessary, but it worked so fairly that there was no question as to its wisdom, which I very soon recognized."⁴⁸

Eisenhower and his chief of staff (Maj Gen Walter Bedell Smith) loyally supported the new organization although they were, in Tedder's opinion, "instinctively antagonistic to it and find it difficult to understand that every General has not a divine right to command his own private air forces, and incidentally a divine inspiration by which he knows better than anyone else how those air forces should be employed." Bedell Smith told Tedder that he would do all he could to make the system work, but it did not affect his opposition to a separate US air force after the war, which would come only "over his dead body."⁴⁹ He would have been unimpressed by General Adler's assertion at a Washington press conference in March 1943 that Tedder had "demonstrated beyond peradventure of doubt that even though the RAF is an independent organization, it can support a ground army in battle."⁵⁰

Tedder had spoken to a group of American and British officers in Spaatz's villa in February 1943, expressing the hope that the new structure would also serve for the much greater challenge of liberating France and the rest of occupied Europe. We are proud of our own air forces, he said, and content with our own methods, but "it will be the fusion of us, the British, with you, the Americans, that is going to make the very best Air Force in the world." Tedder then promised never again to speak of *us* British or *you* Americans. "From now on it is 'we' together who will function as Allies, even better than either of us alone."⁵¹ These words were particularly welcome

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Air Marshal Arthur Tedder

As commander in chief of the Middle East Air Command, Tedder oversaw a successful air campaign in North Africa from June 1941 to May 1943. (Source: US Air Force)

because Spaatz and his staff (including RAF officers) had recently heard Churchill over BBC radio announce the new structure without mentioning a single American officer. Tedder shared Eisenhower's famous enthusiasm for Allied principles, but some of their political masters and military colleagues, as well as some journalists and radio broadcasters on both sides of the Atlantic, deliberately soured Anglo-American relations. From time to time, Churchill and the BBC inadvertently exacerbated the harm by thoughtless flag-waving.⁵²

Neither Tedder nor Spaatz allowed themselves to be swamped by administrative detail or to become prisoners of their staffs. They got out and about, lightly attended, to see for themselves. Though very much in command, they had an informal manner and wasted no time on spit or polish. They kept temperatures down, refusing to fuss or get visibly excited. Like Spaatz, Tedder had a dry wit that appealed to many Americans, among them Harry Butcher, Eisenhower's naval aide, who felt the edge of it one day when Tedder said to him: "Butch, if General Ike ever gives you up as his aide, I just want you to know that I don't want you either."⁵³ The informality was necessary, certainly with regard to paperwork, because British and American staff methods were so different. Professor Solly Zuckerman, Tedder's chief scientific officer, observed that neither Tedder nor Spaatz spoke at meetings unless they had something to say. Although Tedder did not share Spaatz's passion for poker or whiskey and was much less gregarious, their real differences lay in their attitudes toward the war. Spaatz saw it "as an opportunity to show what 'the Air' could do; Tedder saw it in its historical perspective, not obsessed about the place of 'the Air' in Britain's military establishment." Zuckerman might have said, but did not, that Tedder was a member of a service long independent and could well afford his relaxed attitude; Spaatz's situation was quite different.⁵⁴

Unfortunately, Tedder's relaxed attitude changed when he learned on 2 April 1943 of a public quarrel between Coningham and Maj Gen George S. Patton Jr. (newly appointed commander of II Corps). As he saw it, the quarrel threatened "a major crisis in Anglo-American relations."⁵⁵ As

every account of the Tunisian campaign notes (more or less accurately), Patton added an intemperate comment to a routine situation report and gave it a wider distribution than normal. "Forward troops have been continuously bombed all morning," he claimed. "Total lack of air cover for our units has allowed German Air Forces to operate almost at will." Brig Gen Laurence S. Kuter, knowing Patton, was unimpressed; so, too, were General Alexander and Maj Gen Omar N. Bradley (soon to take over II Corps). The signal was "so obviously exaggerated and emotional" that Kuter doubted if anyone would take it seriously.⁵⁶

But Coningham did. It caught him on the raw, and he made his own intemperate, widely distributed response. Tedder, also caught on the raw, made Coningham withdraw his signal and apologize in person to Patton. Tedder was exceedingly anxious about any public threat to Anglo-American harmony and claimed in his memoirs that only his prompt actions prevented the supreme commander from resigning. It is certainly true that Eisenhower shared Tedder's anxiety, but it was in fact Spaatz who settled the affair by pointing out that Coningham had actually defended his *American* subordinates (XII Air Support Command) against unjust criticism and convinced Eisenhower that Patton was mostly to blame.⁵⁷

The episode shows how determined Tedder was to maintain good Anglo-American relations—and Coningham certainly got the message: "getting together" included staying together, regardless of the rights or wrongs of particular issues, and there must be no public quarreling. On 5 April Coningham addressed a long (and in places, groveling) account of the affair to Air Vice Marshal Philip Wigglesworth, Tedder's chief of staff in Algiers. "The Chief reproved me for my signal," he admitted, "and I think he was quite right because it does not help to throw grit in the works and no individual must be allowed to upset the machine. . . . If you have the opportunity, would you kindly convey this aspect of the incident to General Eisenhower with my sincere regrets?" What weighed most with Tedder, as he confided to Portal on 17 April, was the "repeated failure" of American troops to carry out offensives successfully. This was "an unfortunate fact," and Eisenhower was "very concerned that this situation may be distorted and

developed by Hearst Press to support a campaign for confining American military effort to Pacific theater. We shall have to be careful to avoid over-stressing British contribution to present campaign."⁵⁸

Several air force officers commented on Tedder when interviewed in the Pentagon after their return from duty in North Africa. Their comments are especially valuable because the interviews were unpublished—no question of buttering up an ally arises. Maj Frederick S. Wildman, for example, was interviewed on 5 April 1943. He had met Tedder in Algiers and admired his "warmth, his simplicity and, above all, his direct objective thinking and plain common sense." Tedder had "no artificial dignity and could as easily be a fine character out of New England or Texas as out of Great Britain. I am convinced he will get along well with us and we with him." Lt Col C. V. Whitney agreed. He had worked with Tedder for nine months and admired his courage in standing up to army commanders. He imbibed Tedder's principles for the employment of airpower, which may be summarized as follows: independent command of the air force; adjacent army and air headquarters, with nightly joint meetings; intelligence and operations officers working side by side; all units mobile; radar installed at every airfield to prevent fighters, the "basic weapon" of an air force, from being caught on the ground; and rapid communication available between air headquarters and unit commanders.⁵⁹

On 24 May 1943, after victory had been achieved in Tunisia, Spaatz sent his thoughts on the structure created in February to General Arnold. It had "served its purpose," he grudgingly admitted, but in his opinion it was "too dependent on personalities to be sound as a permanent setup. Channels of control, basic allegiance, and differences in national aims are all elements which crop up from time to time. There is no doubt but that we have acquired much benefit from this intimate association with the RAF. This is particularly true in connection with fighter operations, air-shipping operations, administrative planning, and intelligence. I believe, however, that they have learned as much from us in the strategic application of air power." As for relations with the Army, Spaatz told Arnold that if it were not for "the disturbance

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which would ensue, I would probably announce the urgent necessity of a separate Air Force."⁶⁰

Two years later, on 20 May 1945, after victory had been achieved in Europe, Spaatz was of a different opinion about the dependence on personalities. The organization adopted for Operation Overlord, he told historian Dr. Bruce C. Hopper, "wasn't necessary. Provided they had put into effect the same organization up here that they had in the Mediterranean." Spaatz had discussed this with Eisenhower and Tedder. "I told them then that the thing to do was to organize on the same basis that we did down in Africa, and that I would accept Tedder as the Air Commander, and go under him as Deputy in Command of the American Air Forces." Unfortunately, this was not done. "Eisenhower, Tedder and myself kept in such close touch with ourselves that nothing could possibly go wrong, except in our own persons. . . . It worked well enough to win the war, yes, but if one of the three had been struck by heart failure it might have worked so poorly as to lose the war. . . . In other words, it was a lousy organization." Interviewed again by Hopper on 27 June 1945, Spaatz repeated his point: "I suggested that we organize here exactly as we organized in the Mediterranean. . . . That was never done. . . . don't know what the stumbling block was—it may have been [Air Chief Marshal Sir Arthur] Harris [head of RAF Bomber Command]. . . . Perhaps Harris had been built up too strong to be placed under the command of Tedder. . . . We felt that all Air Forces must be tied in with the operation of the ground forces, all being considered as one problem. That was based on our experience down in the Mediterranean." By the end of the war, then, Spaatz agreed with Tedder that personalities mattered more than structures.⁶¹

After the war, two famous American air generals emphasized Tedder's management skills. "Even when persuading you," recalled Pete Quesada, "he seldom worked on the actual point. He tried to influence people's minds and have *them* think straight rather than order their actions." Larry Kuter added, "His manner of operating was one of getting conflicting interests together and staying very much in the background." Somehow, the decisions that emerged were usually the ones he wanted.⁶² However, Tedder was much more than an adroit operator. He had a vision of war "as a single problem in which the strategy,

the tactics, and the technique of sea, land and air warfare respectively are inevitably and closely interlocked."⁶³ "Given mutual understanding of that, you get mutual faith: and only with mutual faith will you get the three arms working together as one great war machine," a machine capable of pulling its weight in the largest and most successful military collaboration in history. This vision, formulated in the Mediterranean, admirably fitted that of Eisenhower.⁶⁴

As for Coningham, he played a full part in creating this vision, despite his quarrel with Patton. For instance, he had greatly impressed Brig Gen Howard A. Craig, a distinguished USAAF staff officer, who recorded in December 1942 Coningham's startling opinion that army and air commanders should enjoy equal status, and his even more startling statement that direct support from the air had played only a minor part in the desert conflict. In fact, claimed Coningham (with an exaggeration doubtless calculated to impress Craig still further, and through him, Spaatz), the army had actually been in support of the air effort by capturing essential landing grounds, preparing new ones, and transporting and protecting supplies, because "the Army cannot advance without fighters and the fighters cannot move without petrol."⁶⁵

Until February 1943, when Coningham arrived in Tunisia, another American officer (General Kuter) had been put in charge of something called Allied Air Support Command. "Since all ground officers are expert Air Chief Marshals," wrote Kuter on January 26, "my job is to keep ground forces from swallowing the air forces, to keep RAF from swallowing AAF, etc. Nice bunch of cannibals in Africa! And Casablanca. And London. And Washington." Coningham and Kuter became good friends, but not at first sight. Kuter thought him "a big, self-confident, forceful and clearly ambitious fellow"; but he came to admire Coningham's style, respected his record, and (more to the point) became convinced that his methods worked and would help along the cause of independence for the US Air Force. Coningham, of course, refused to be an *air support* commander, and Kuter foresaw that Spaatz would have a tough time "between the charming Tedder and the bellicose Coningham."⁶⁶

As Spaatz wrote to Maj Gen George E. Stratemeyer (chief of Air Staff in Washington) on 8 February, it was hard to treat aviation as "coequal with the Army and Navy in our [American] setup, whereas the RAF will not submit to it being considered in any other way." The RAF would not accept that air support "belongs" to an army commander or that an army commander could dictate its employment. Spaatz was quite right, and at the end of that same month Portal would emphasize the same point in a letter to Churchill. He told the prime minister that the failures in Tunisia before the desert commanders arrived had been exacerbated by British and American generals insisting that airpower belonged to them and that it should be divided into what he called "penny packets"; that is, numerous small formations of aircraft circling over frontline troops as defensive umbrellas against dive-bomber attacks in particular. Kuter would later recall that Patton refused to camouflage his command post and, when it was strafed, demanded an umbrella from dawn to dusk, even if this meant no offensive operations could be flown. According to Kuter, American troops were instructed to abandon light flak weapons and take cover whenever Stukas appeared. These dive-bombers were regarded as invincible and deadly by men who had seen too many newsreels.⁶⁷

Alarmed by such nonsense, Coningham went to Tripoli on 16 February "to put a little air sense into the mob of Generals there," as Air Vice Marshal James Robb (Spaatz's British chief of staff) noted in his diary. Coningham's address to senior American as well as British officers in Tripoli made an uncommon stir, to judge by the number of copies surviving in Anglo-American archives. This address, and a subsequent directive to his subordinate commanders, summarized principles of lasting value formulated—or collected or remembered—by Tedder, Coningham, and others close to them. These precepts were incorporated into a pamphlet approved by the Air Ministry, Arnold, and Montgomery, who had them widely circulated throughout the British army as Montgomery's own views.⁶⁸

These principles may be considered under four headings. First, that the army and air commanders must act together in accordance with a combined plan, the whole operation to be

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Air Vice Marshal Arthur Coningham

Coningham prepares to visit his forward units in the Western Desert. (Source: Sarah Braxton Coningham Whittaker, Coningham's granddaughter)

directed by the army commander. Second, that the fighter governed the front, and this fact required the centralization of airpower in the hands of an airman to exploit its flexibility. For instance, fighters must not be used as local umbrellas

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over a static front because this would leave the Luftwaffe free to bomb and strafe airfields, rear areas, and supply lines. Third, that air superiority must be sought—and continually maintained—both to permit the orderly concentration of friendly forces and their buildup of supplies, and to impede that orderly concentration and buildup by enemy forces. If enemy movement could be restricted to the hours of darkness, *unescorted* bombing (by a force too small and vulnerable to risk unescorted in daylight) would become possible. And fourth, that the battlefield be isolated, as far as possible, by destroying access to it—whether by road, bridge, railway, river, canal, or port—for troops or supplies.

Coningham did not specify what degree, if any, of close air support the soldier could expect. Sir Kenneth Cross, head of 242 Group in Tunisia, has written that soldiers urged him to “keep the enemy air off our backs, that’s all we ask; we can cope with the rest.” Until near the end of the Tunisian campaign, it was the most that could be attempted. It was also, as Cross observed, wishful thinking on the soldiers’ part, given the expertise of their German opponents; man for man, Allied soldiers were usually outmatched.⁶⁹ Consequently, as Allied airpower increased and enemy airpower declined, “protecting backs” would be regarded as the very least that should be done. During Overlord, airpower would frequently be expected to substitute for ground action. To do so, it would need specially designed and equipped fighter-bombers as well as more rapid and accurate communications systems between air and ground units than those that were available in either the desert or Tunisia.

The good effect of Coningham’s Tripoli speech was increased by Air Marshal Sir Trafford Leigh-Mallory’s visit to Tunisia in March and April 1943. As head of RAF Fighter Command in Britain, Leigh-Mallory went there to study the air structure with future operations across the Channel in mind. His report to Portal, warmly commending the organization of Coningham’s command as excellent both in operations and in fostering good relations with other services, British and American, was well received. It led in June 1943 to the Air Ministry’s revamping of the Army Cooperation Command into the Second Tactical Air Force (Coningham’s being the First

Tactical Air Force). To obtain that command, once a Channel crossing emerged as a realistic prospect, would become Coningham's ambition.⁷⁰

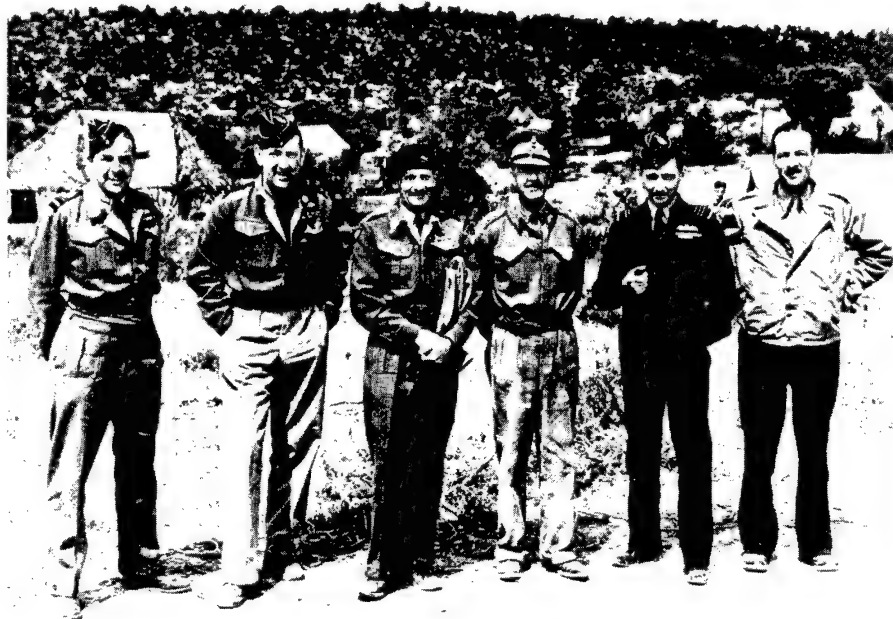
General Kuter took with him to Washington on 13 May 1943, a report that was in fact an indictment of the handling of airpower during the Tunisian campaign before the restructuring of February. The indictment fell on more fertile soil than Kuter cared (then or later) to admit, since Spaatz had naturally kept Arnold fully informed about all operations. Until then, American doctrine had been expressed in Field Manual (FM) 31-35, which cast aviation in a defensive role, with the neutralization of enemy airpower a secondary task. For example, the manual did not even mention airfields among suitable targets for air strikes. This doctrine ran counter to what air officers had been learning at the Air Corps Tactical School, where "the faculty preached unity of command and concentration of forces for offensive action to attain that first priority, air superiority."⁷¹ Although Coningham was therefore preaching to many converts in Tunisia, he was supporting what they believed from personal experience backed by the prestige of success.

Kuter helped to get a new manual written (FM 100-20) which formally became US War Department policy on 21 July 1943. As General Momyer has written, that manual is "the emancipation proclamation" of tactical airpower in the United States. Like other such proclamations, it has meant different things at different times, not all of them intended by its authors, and it affords ample scope for study.⁷² Communications links and procedures for setting priorities in answering calls for air support had still to be worked out, but the doctrine made possible, in the words of an official historian, John E. Fagg, "one of the most effective collaborations known to military history."⁷³

That doctrine was perhaps less important than the fact that Tedder and Coningham did "get together" with Americans as well as with the British army. A mutual respect ripened in many cases into friendships of an intensity unique to those who have served together under fire: an intensity deepened by the fact that these RAF officers and their American companions tasted the joy, however briefly, of absolute victory, earned after years of joint struggle, over one of the

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most powerful and criminal regimes ever to have infested this planet. Only in the final stages of their collaboration, however, did air superiority become air *supremacy*, as the valiant Luftwaffe ran out of pilots and petrol. Given supremacy, as in the recent Desert Storm operation, aircraft can carry out accurate bombing of the battlefield, supply lines, and access routes, and do these around the clock, to prevent enemy sleep as well as movement. But close air support remains as dangerous as ever, even from what one Desert Storm pilot called a "prehistoric" curtain of cannon and tracer put up by Iraqi flak batteries. "I never imagined there could be that much ground fire," said another pilot.⁷⁴ Veterans of earlier desert storms, who faced flak that was just as frightening in BE-2cs or Kittyhawks, and who now hog the bar in that great mess in the sky, will have smiled to hear such words before turning to ask, respectfully, of course, what Tedder and Coningham think of modern tactics.



Allied Leaders in North Africa

From left: Air Vice Marshal Harry Broadhurst (commander of Western Desert Air Forces after February 1943); Air Vice Marshal Arthur Coningham; Gen Sir Bernard Montgomery; Gen Sir Harold Alexander; Air Marshal Sir Arthur Tedder; Brig Gen Laurence S. Kuter. (Source: Mrs. L. S. Kuter's collection)

Eisenhower was often accused by his fellow countrymen of being Britain's best general, and Tedder might well be dubbed America's best air marshal. During the war, Tedder weakened an American conviction that Britons were publicly patronizing and privately insulting. After the war, aided by Russian aggression, he modified the conviction long inculcated at Army and Navy War Colleges that Britons were rivals.⁷⁵ To get a friend, he knew, you have to be one, and Walter Bedell Smith (not a man to annoy, regardless of where you were born, or a man who wore his heart on his sleeve, either) told Tedder in July 1945: "I feel closer to men like you . . . than I have ever been to friends that I have known all my life. . . . Give my love to Toppy [Tedder's wife]. Both you and she will always be at home wherever I am."⁷⁶

Notes

1. Equivalent in rank to a lieutenant general.
2. B. H. Liddell Hart to Cassell & Co., Ltd., letter, 26 April 1966, King's College, London, Liddell Hart Centre for Military Archives, Liddell Hart Correspondence, 1/339/20.
3. Samuel Johnson, in *The History of Rasselas, Prince of Abissinia*, chap. 26, quoted in James Boswell, *Boswell's Life of Johnson* (London: Oxford University Press, 1946), 15 April 1778: "I am willing to love all mankind, except an American." This was one Johnsonian dictum that Tedder, of course, ignored.
4. Lord Arthur William Tedder, *With Prejudice: The War Memoirs of Marshal of the Royal Air Force Lord Tedder*, GCB (London: Cassell, 1966), 32.
5. Marilyn Bender and Selig Altschul, *The Chosen Instrument: Pan AM, Juan Trippe, The Rise and Fall of an American Entrepreneur* (New York: Simon & Schuster, 1982), 10-15, 362-72; Edward T. Purcell, "African Airline: A Study of Pan American Airways' Operations in Africa, 1941-1942" (master's thesis, Columbia University, April 1946), 12; Tedder, 156-58, 222-24.
6. Brig Gen Elmer E. Adler, US Military North African Mission, Cairo, to Brig Gen H. J. F. Miller, HQ Service Command, Wright Field, Dayton, Ohio, letter, 29 November 1941, Bolling Air Force Base (AFB), Washington, D.C., in Microfilm A.1748.
7. Tedder, 158-62, 209-10; Maj Gen George H. Brett to Gen Henry H. Arnold, letter, 22 September 1941, Library of Congress, Washington, D.C., Arnold Papers, box 41. "The British are in a very tight spot and unless somebody wakes up to the situation they're sure as the mischief going to get caught. To sum up, if Russia cannot tie the German air force to the

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ground during the winter by offensive action, Hitler can concentrate a tremendous mass in Crete and lower Greece. A mass of air concentrated at this point can practically make Cairo untenable; furthermore the Egyptians are neutral and any amount of bombing of Cairo will undoubtedly cause a reaction which may eventually force the English [*sic*] to evacuate. . . . I may be a little pessimistic but from Germany's angle it appears to me a terrifically simple problem compared to that confronted by the British."

8. Tedder, 156-58, 222-24; Brig Gen Robert Olds, Head, USAAC Ferrying Command, Washington, D.C., to Brig Gen Elmer E. Adler, U.S. Military North African Mission, Cairo, letter, 14 February 1942, Bolling AFB, Washington, D.C., Microfilm A.1748.

9. Roderic Owen, *Tedder* (London: Collins, 1952), 165-67; Tedder, 354-55.

10. Owen, 166, 190; Tedder papers, author's unpublished personal collection.

11. Tedder papers.

12. *Ibid*; Tedder, 319. "It was not true," added Churchill, "and I was not told the truth. I am sorry."

13. Field Marshal Sir Michael Carver, ed., *The War Lords: Military Commanders of the Twentieth Century* (Boston: Little, Brown and Co., 1976), 486-87.

14. Denis Richards, *Portal of Hungerford: Life of Marshal of the Royal Air Force, Viscount Portal of Hungerford, KG, GCB, OM, OSO, MC* (London: Heinemann, 1977), 236 (Judas); Tedder, 184 (Brutus).

15. Vincent Orange, *Cunningham: A Biography of Air Marshal Sir Arthur Cunningham, KCB, KBE, OSO, MC, DFC, AFC* (London: Methuen, 1990; Office of Air Force History, Washington, D.C., 1992), 18. Cunningham was always known, to friends and enemies alike, as "Mary," a nickname probably derived from "Maori," given him because he was a New Zealander, though he had no Maori blood.

16. Tedder, 55.

17. Tedder papers; Liddell Hart to Cassell & Co., letter, 26 April 1966.

18. Orange, 667.

19. *Ibid.*, 78.

20. Air Vice Marshal Raymond Collishaw with R. V. Dodds, *Air Command: A Fighter Pilot's Story* (London: William Kimber, 1973).

21. Air Marshal Sir Peter Drummond, "The Air Campaign in Libya and Tripolitania," *RUSI Journal* 88 (1943): 257.

22. "RAF Narrative: The Middle East Campaigns" (London: Public Record Office (PRO), AIR 41/25, vol. 2, pt. 1, Collishaw, "Lessons Learnt in Western Desert," 47; Roderic Owen, *The Desert Air Force* (London; New York: Hutchinson, 1948; Arrow paperback edition, 1958), 17-75; John Terraine, *The Right of the Line: The Royal Air Force in the European War, 1939-1945* (London: Hodder and Stoughton, 1985), 301-52 (the quotation appears on 304).

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23. Henry H. Arnold to Lord Arthur William Tedder, letter, 5 July 1943, Library of Congress, Arnold Papers, box 47.

24. Air Marshal Sir Arthur Coningham, "The Development of Tactical Air Forces," *RUSI Journal* 91 (1946): 32.

25. *Ibid.*, 213.

26. Field Marshal Lord Carver, *Twentieth Century Warriors* (London: Weidenfeld and Nicolson, 1987), 313.

27. Orange, 79.

28. *Ibid.*, 134. "Incidentally," said Coningham in February 1943, "we here still do not understand why some of the Army and Air officers concerned in the planning of Torch did not visit the Western Desert and learn at least some of the simple lessons which 8th Army mastered over twelve months ago."

29. "RAF Narrative," PRO, AIR 41/25, vol. 2, 568.

30. *Ibid.*, 59–62; Shelford Bidwell and Dominick Graham, *FirePower: British Army Weapons and Theories of War 1904–1945* (London: George Allen & Unwin, 1982), 263–69; Richard G. Davis, *Tempering the Blade: General Carl A. Spaatz and American Tactical Air Power in North Africa, November 8, 1942–May 14, 1943* (Washington, D.C.: Office of Air Force History, 1989), 44–46.

31. "RAF Narrative," PRO, AIR 41/25, vol. 2, 99–103.

32. Orange, 83.

33. Air Marshal Sir Kenneth Hayr, "Logistics in the Gulf War," *RUSI Journal* 136 (1991): 14, 19.

34. Orange, 89.

35. *Ibid.*, 90, 98.

36. F. H. Hinsley et al., *British Intelligence in the Second World War: Its Influence on Strategy and Operations*, 3 vols. (London: Her Majesty's Stationery Office [HMSO], 1979–87; also New York: Cambridge University Press, 1979–1990), vol. 2, 373–80. [Entire series.]

37. David Irving, *The Trail of the Fox: The Life of Field-Marshal Erwin Rommel* (London: Futura Publications, 1978), 182–83, 189, 201; Harold Faber, ed., *Luftwaffe: An Analysis by Former Luftwaffe Generals* (London: Sidgwick & Jackson, 1979), 119–20.

38. Orange, 100.

39. Matthew Cooper, *The German Air Force, 1933–1945: An Anatomy of Failure* (London; New York: Jane's, 1981), 209–10; Orange, 97.

40. Orange, 93.

41. Irving, 51, 174.

42. Orange, 106.

43. Nigel Hamilton, *Monty: The Making of a General (1887–1942)* (New York: McGraw-Hill, 1981), 601; Orange, 105.

44. Book reviews, *Sunday Times* (London), 30 October 1983 (a review of books by Nigel Hamilton and Richard Lamb).

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45. Lt Gen Lewis H. Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe, 3 October 1941-8 May 1945* (New York: W. Morrow and Company, 1946) 167-68, 172; Orange, 117, 125-26.
46. Richard H. Kohn and Joseph P. Harahan, eds., *Air Superiority in World War II and Korea: An Interview with Gen. James Ferguson, Gen. Robert M. Lee, Gen. William Momyer, and Lt. Gen. Elwood R. Quesada* (Washington, D.C.: Government Printing Office, Office of Air Force History, 1983), 30-31.
47. Orange, 131.
48. Owen, 191-92, 194-95.
49. Tedder, 404-5.
50. Brig Gen Elmer E. Adler, press conference, 25 March 1943, Bolling AFB, Washington, D.C., Microfilm, A.1748, 1-10.
51. Tedder, 397-98.
52. Spaatz Papers, Library of Congress, box 23, February 1943.
53. Davis, 2; Harry C. Butcher, *My Three Years with Eisenhower: The Personal Diary of Captain Harry C. Butcher, USNR, Naval Aide to General Eisenhower, 1942-1945* (New York: Simon & Schuster, 1946), 343.
54. Baron Solly Zuckerman, *Six Men Out of the Ordinary* (London: Peter Owen, 1992), 65-66, 99.
55. Tedder, 411.
56. Orange, 146.
57. Davis, 98-103.
58. Orange, 149.
59. Interviews with Maj Frederick S. Wildman and Lt Col C. V. Whitney, Bolling AFB, Washington, D.C., Microfilm A.1274.
60. Spaatz Papers, Library of Congress, box 11.
61. Ibid., box 136.
62. Owen, 207, 216; Gen Laurence S. Kuter, interviewed by Thomas A. Sturm and Hugh N. Ahmann, September-October 1974, Bolling AFB, Washington, D.C., K239.0512-810.
63. Marshal of the Royal Air Force (MRAF) Lord Arthur Tedder, *Air Power in War* [The Lees Knowles Lectures, a series of four lectures delivered at Cambridge University, February-March 1947] (London: Air Ministry, September 1947), 11.
64. MRAF Lord Tedder, "Air, Land and Sea Warfare," *RUSI Journal* 91 (1946), 64.
65. Orange, 124, 126.
66. Ibid., 131.
67. Ibid., 131-33, 139-40.
68. Ibid., 133-34.
69. Sir Kenneth Cross to author, private communication, 17 June 1988.
70. Orange, 149-51.
71. Davis, 107-117; I. B. Holley Jr., "Land/Air Operations in North West Africa," *RAF Historical Journal* 9, 49, 52.

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72. Maj John Patrick Owens, "The Evolution of FM 100-20, *Command and Employment of Air Power* (21 July 1943): The Foundation of Modern Airpower Doctrine" (master's thesis, Fort Leavenworth, Kans., 1989).

73. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, 7 vols. (1948-1958; new imprint, Washington, D.C.: Office of Air Force History, 1983), vol. 3, 807.

74. J. M. Ramsden, "Gulf Air War," *Aerospace* 18, no. 3 (March 1991): 4.

75. John Gooch, "'Hidden in the Rock': American Military Perceptions of Great Britain, 1919-1940," in *War, Strategy, and International Politics: Essays in Honor of Sir Michael Howard*, ed. Lawrence Freedman et al. (Oxford; New York: Oxford University Press, Clarendon Press, 1992), 172-73.

76. Ibid.

A Glider in the Propwash of the Royal Air Force?

**Gen Carl A. Spaatz, the RAF, and the
Foundations of American Tactical Air Doctrine**

David R. Mets

Since well before John Quincy Adams pronounced on 7 November 1823, "It would be more candid as well as more dignified, to avow our principles explicitly to Russia and France, than to come in as a cock-boat in the wake of the British man-of-war," Americans have often been concerned lest they appear the junior partner in a long string of common enterprises with the British.¹ One of the more recent experiences had to do with the origins of US Air Force (USAF) tactical air doctrine in the World War II campaign in North Africa, the 50th anniversary of which has recently reached us. A common image over the last 50 years has been that an infant US air arm stumbled into the big leagues against Erwin Rommel, with no clue as to the rules of the game. The image also contains the notion that US Army airmen quickly showed their ignorance until the RAF came to their rescue with a proper doctrine and leadership.²

My purpose is to revisit this issue, seeking additional insights arising from a considerable new literature on the North African air campaign. Just what was it that the RAF taught the Americans? Which of the Americans needed teaching? What was the role of Gen Carl A. Spaatz, the senior American airman involved in the process? Is the standard interpretation of the RAF's contribution to the campaign in Tunisia and the genesis of American tactical air doctrine subject to readjustment?

The working hypothesis for this essay, then, can be expressed thusly: The set of ideas that constituted the framework for the US tactical air doctrine as expressed in Field Manual (FM) 100-20, *Command and Employment of Air Power*, and all subsequent USAF doctrinal manuals is often thought to be of British origin. However, documentation

regarding the US Army Air Service in World War I and the Air Corps in the interwar period reveals that the main ideas already existed in the minds of many American airmen long before the beginning of the African campaign. Air Marshal Coningham and Field Marshal Montgomery probably did more to help American airmen sell their concepts to US soldiers than they did to teach Americans how to organize for and conduct an air war. Previously, US airmen had made only a little progress in persuading their fellow Army men. The combination of the great prestige of El Alamein and the great disappointments of the Battle of Kasserine Pass enabled the British to help the airmen gain a little in their effort. The air situation did improve in the aftermath of Kasserine, but that was due to many other factors in addition to the ideas and leadership the desert veterans brought to North Africa. General Spaatz's role in all of this was more as a diplomat than as a student of airpower doctrine. He served largely to facilitate cooperation between air and ground, and between the Americans and the British. He already understood most of the tactical air ideas involved when he came to Africa.

In assessing the literature on the North African campaign, I found it more extensive than I had suspected—and it continues to grow. For this work, I have explored some of the major printed secondary and primary sources to establish a historiographic framework. I have confined most of my research in the unpublished primary sources to those having to do with Gen Carl A. Spaatz and his role in the North African campaign. In so doing, I was seeking a divergence (if any) between the most common historical views and the tentative image that would seem to emerge from the unpublished sources consulted.

The Conventional Image

Notwithstanding all the enthusiasm expressed by senior airmen that the publication of FM 100-20 had solved the doctrinal problems, contrary views on the solutions and on the origins of the ideas have persisted to the present day. Col Robert H. Scales Jr., an American artillery officer, wrote in 1990:

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The doctrinal struggle between these two factions [Army Air Forces and Army Ground Forces] effectively halted progress toward a system of close air support until the opening campaign in North Africa when the Luftwaffe provided a painful lesson on how it was done. At the Battle of Kasserine Pass, American units were badly mauled by an air-armour team perfected in Poland, France and North Africa. Stuka dive bombers, designed specifically for ground support, continually bombed and strafed American defensive positions. There was little evidence of Allied airpower. . . . After the disastrous opening campaign in the Northern Desert, a British air officer, Air Marshal Sir Arthur Coningham, instituted a system of control of Allied tactical airpower by grafting to the out-of-date American doctrine a system established and proven by the British Eighth Army in North Africa. Coningham preached that communications was the key to successful air-ground operations. He insisted that air and ground field headquarters be located together and demanded that effective liaison be established between them from Army Group down to division, following the British example.³

Colonel Scales garbled just what the substance of the British doctrine was supposed to have been. The message was much more akin to what the US Army Air Corps had been preaching ever since the days of Billy Mitchell than it was to anything proposed by the Army ground forces. The essence was centralized command of air forces by air commanders at the theater level, a concept quite at odds with the ideas of many American ground force commanders (then and today) and those of even the British First Army in Tunisia. Almost as important in the doctrine that the British were alleged to have transported to Tunis from Cairo was preference for the offensive use of airpower, again quite at odds with the preferences of soldiers of both the British First Army and the US II Corps in central Tunisia. Finally, the priority of missions was an issue. All concerned understood that air superiority came first, but Coningham favored rear area attacks rather than battlefield strikes within the range of friendly artillery—again, a message that Carl Spaatz had been urging on the ground and air commanders in North Africa well before Coningham and Tedder took command.⁴

The sets of ideas most prominent in both the British documents and the US Army FM 100-20 published in the wake of the African campaign *are* strikingly similar: Tactical airpower must be centrally controlled at the theater level. It must be commanded by an airman who is colocated with and

coequal to the theater commander. Its first mission is to achieve and maintain air superiority. The second priority is to execute operations against enemy forces away from the battlefield, in his rear areas. Attacks against battlefield targets must be the exception and are to be avoided anywhere within range of friendly artillery.⁵

The Problem with Torch

The picture we have of the impact of Torch on USAF doctrinal development may be somewhat skewed by the press of events in traumatic times and by the garbling of the sequence of events. Recall that the original plan called for three landings. The westernmost one, near Casablanca, was commanded by George Patton and deployed directly from Norfolk, Virginia, to the African shore. The concept was that it and its accompanying air forces would protect the Allied line of communications against a possible Nazi or Spanish thrust southward from the Iberian Peninsula across the Straits of Gibraltar. It was envisioned that the air element would set up at a series of airfields along the southern border of Spanish Morocco in an air defense mode. These airfields were indeed established and kept operational until the end of the North African campaign. Patton's ground troops were not envisioned as the striking arm destined to attack Tunisia and close off Rommel's route of escape. Neither the ground forces nor the air forces had had much in the way of air-ground training. The 33d Fighter Group, which landed at Port Lyautey, for example, had been trained for the air defense of the northeastern United States.⁶

The center force (the one landing at Oran) and the easternmost force (the one headed for Algiers) were both largely British with token American forces included so as to disarm French hostility. The easternmost force was the one designated to do the damage to the Germans. The idea was that as soon as the landings were secure, Eisenhower would thrust that force eastward in the hope of beating Rommel to Tunis and Bizerte, trapping him between Torch and the British Eighth Army that was following him from El Alamein

toward Tripoli. The easternmost force was the British First Army commanded by Lt Gen Sir Kenneth Anderson.

In the planning, First Army was to be supported by the RAF 242 Group commanded by Air Marshal Sir William Welsh. In the plan, neither Patton's ground units nor those under Maj Gen Lloyd Fredendall, which had deployed from the United Kingdom with the Oran force, were envisioned as part of the group that would dash to Tunis and Bizerte to close off Rommel's retreat. Still less seen as having major roles in Tunisia were the XII Air Support Command with Patton and the XII Fighter and Bomber Commands deploying from the United Kingdom. The operations were concluded in Morocco and Algeria more rapidly than the worst-case predictions, and the main fighting occurred when Anderson's forces arrived in the vicinity of the Tunisian ports.

When the Germans concluded that indeed North Africa was the target of Torch, they quickly anticipated the thrust on Tunis and moved major forces there—in the nick of time. The thrust along the North African shore, then, was the main preoccupation in the weeks after the landings of 8 November 1942. Only after the coast had been blocked on the outskirts of Tunis did Eisenhower begin looking for alternatives. This occurred in December 1942, and the point is that neither the US II Corps nor the XII Air Support Command had been much involved in the fighting.

By the 8th of December, things had calmed in Casablanca. The 33d Fighter Group had been removed from Port Lyautey and sent into Thelepte in central Tunisia. For a time, Eisenhower thought he might make a thrust from that area to the eastern coast of Tunisia well below Tunis and so cut Rommel's retreat route before having to defeat Colonel-General Jüergen von Arnim's force, which Hitler had quickly deployed to northern Tunisia to protect the ports.⁷

One complicating factor may have been that the humiliation at Kasserine and the reorganization of the Allied air forces in Africa were so closely associated in time that an unwarranted assumption of cause and effect was made by many. Through the last three weeks in December and in all of January in 1943, the 33d Fighter Group was suffering at Thelepte airfield, heavily engaged both on the ground and in the air. No sooner

had the unit been deployed to the plain beneath the western dorsal range than the Luftwaffe began to contest the turf. But Rommel was still far to the south, and the II Corps was still gathering forces and not yet heavily engaged with Axis ground forces.

The Casablanca Conference opened on 14 January 1943, and that is where the decision was made to reorganize the air forces into a more unified whole and to adapt the practices of the Western Desert Air Force to the air fighting in Tunisia. That is where the decision was made to centralize the control of tactical air forces under the command of an airman—an RAF airman, Sir Arthur Coningham.

Kasserine, then, cannot have been the cause of the reorganization or the original stimulus for a revision in doctrinal thinking. It is also questionable whether II Corps difficulties with air support can have been at the root of things, for it had not yet engaged in major offensive operations. If battlefield difficulties or the personalities of senior commanders were the stimuli of the reorganization, it seems likely that RAF 242 Group's support for the First Army and the problems between Air Marshal Welsh and his countryman General Anderson were more significant than the American difficulties. The RAF and the First Army had been most heavily engaged in unsuccessful air-ground operations *before* Casablanca, but the US II Corps had yet to engage in offensive operations that could have exposed much in the way of defects in air-ground doctrine.

Ideas Extant in the USAAF

Important to a judgment on the genesis of USAF doctrine on ground support is some perception of the baseline, the starting point. What was the nature of Air Service and Air Corps thought on air-ground operations *before* Torch? How different was it from the concepts expounded in FM 100-20 of July 1943?

I believe the seeds of the idea that the command of airpower should be centralized at the theater level and in the hands of an airman were present even in the Air Service of the American Expeditionary Forces in World War I. So, too, the

notions that air superiority comes first and that airpower is inherently an offensive instrument were established before the Kaiser's war was over. Doubtless, much of the concept of airpower expounded by Billy Mitchell and William Sherman based on their wartime experiences had come to them from contact with foreign air forces, especially the French (but also the British). The notions just expressed and even the idea that the moral effect of air attacks on troops would be a passing phenomenon are present in their writings. So too is the idea that those things plus the dispersion and field fortifications on the battlefield combined to make close air support less profitable than rear area attacks.⁸

Thomas DeWitt Milling was in wartime Europe with Mitchell, Spaatz, and Mason Patrick. After returning to the United States, Milling became assistant commandant of the Air Service Field Officers School, the precursor of the famous Air Corps Tactical School. While he was at the school, he authored Training Regulation 440-15, *Air Tactics*. This 1922 treatise devoted a substantial portion to "attack" aviation.⁹ Since Spaatz was assigned to the school as a student not long afterward and since he much later cited Milling as the single most influential person on his own career, it is no great inferential leap to suppose that Spaatz was fully conversant with Milling's concepts.¹⁰ Furthermore, Spaatz was already a protégé of Billy Mitchell, who shared most of Milling's ideas, and he was soon to become a member of Patrick's operations staff. (Patrick also adhered to many of the same notions.)

Milling in 1922 was explicit in advising the centralized control of ground support aviation at the highest possible level—by an airman. He asserted also that the apparent moral effects of air attack on ground troops would probably wane rapidly to make low-altitude attack over the battlefield an uneconomical proposition. The troopers would soon learn to stand up and fight, and their fire would be lethal to the aircraft. Further, target acquisition on the battlefield would be a tough problem since targets there would be dug in and dispersed. He also argued that targets in the enemy rear would be much more concentrated and relatively defenseless. Milling was strong too in his assertion that airpower is inherently offensive and flexible. That, along with the need to

coordinate the operations of attack units with air superiority organizations, made centralized control by an airman all the more imperative. In short, Milling's document would have served well as a catechism for air-ground training in preparation for the Battle of Kasserine Pass. We shall see all of his ideas again in Spaatz's preachments around Tunisia and in FM 100-20 of July 1943—and in practically all of the USAF tactical doctrine manuals that followed.¹¹

Doubtless it would be an inferential leap to identify those ideas with Milling alone. The Air Service had fewer than a thousand officers at the time, and practically all of them knew each other well—many had gone to West Point. More likely, the concepts were really corporate property, and Milling's function in 1922 and Kuter's in the writing of FM 100-20 twenty-one years later were to be articulators of the corporate knowledge and ideas.

It is also worth noting at this point that the United States was the only nation in the world that maintained a dedicated ground support air organization during the entire decade of the 1920s. It was not until the 1930s that Italy and the Union of Soviet Socialist Republics (USSR) developed such dedicated units, and the RAF did not have such an organization until many years after the 3d Attack Group had been established in the US Army Air Service (1921).¹²

Many have argued that the Air Corps became so obsessed with achieving a separate air force through strategic bombing doctrine that it ignored the tactical functions of airpower.¹³ That attack aviation continued to have a low priority among airmen can hardly be doubted, but it was not ignored. Firstly, the 1920s was as isolationist a period as the United States ever has had. The United States came away from World War I with the determination never again to become involved in an overseas war. (The war debts issue only enhanced this determination.) In any case, the political climate dictated that the services plan only for defending the homeland, not for expeditionary action. The first requirement, then and until the late 1930s, was to prepare to meet an invasion from overseas; coastal defense operations, not air-ground tactics, were the essence of the airmen's work. In this, they were in perfect harmony with their political leaders. Airpower could meet

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invading fleets long before the ground forces engaged. The minuscule Army would require a long, long time to activate the industrial base and to mobilize significant surface forces. Thus, it made sense to relegate ground support airpower to the Air Guard and Reserves to be mobilized while surface forces were being prepared. Coastal defense units would meanwhile hold off enemy fleets until the armies and their air support units were ready. Many of the maneuvers that were held as late as the mid-1930s employed a scenario of defending against an invading fleet aimed at Panama, Hawaii, or San Francisco.¹⁴

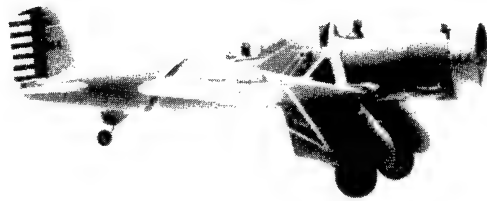
Even as the strategic bombing idea was maturing in the Air Corps, and especially in its Tactical School (now moved to Maxwell Field, Alabama), the 3d Attack Group continued its existence at Barksdale Field in Shreveport, Louisiana. The effort expended on the acquisition of air equipment dedicated to ground support was nothing like that committed to the pursuit and, especially, to the bomber programs, but the fact remains that a series of such aircraft were acquired. The Curtiss A-8, a dedicated ground support type, first flew in 1931. A ground support monoplane equipped with a water-cooled engine, the A-8 later became the A-12 when it was equipped with a Pratt & Whitney air-cooled radial engine. The first pursuit monoplane was the Boeing P-26, which first flew



Curtiss A-8

Contrary to a common misconception, the Air Corps did not ignore tactical aviation between the wars. The liquid-cooled A-8, circa 1928, which was designed for the air-to-ground attack mission, was the first monoplane in regular line service in the United States. (Source: US Air Force)

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Curtiss A-12

Pictured here is the A-12, a derivative of the A-8. Powered by a Pratt and Whitney air-cooled engine, the A-12 came on line with the Air Corps in 1932, when all other air forces in the world were still in biplanes. (Source: US Air Force)

a year later. This does not necessarily indicate that pursuit thinking was less than current, for the wing stress requirements were doubtless greater. But neither is it an indicator that attack aviation was being ignored, unlikely in any event because of the necessity to keep the Army General Staff pacified.¹⁵

The Flying Fortress flew first in 1935, but that did not shove the development of ground support aircraft off the agenda. The Northrop A-17 was a follow-on for the A-8/A-12. The



Northrop A-17

As early as 1935, the A-17 was flying with the Air Corps, first with fixed gear as shown here. The model issued to attack squadrons in 1936 included retracting gear. The Luftwaffe's Stuka flew on with fixed gear throughout World War Two. (Source: US Air Force)

Northrop airplane was acquired in respectable numbers (129) for that day, and the chief of the Air Corps himself, Oscar Westover, had one assigned as his personal plane. In fact, he killed himself in it in 1938 on the very day he had visited a bomber unit to present it with the Daedalian Flying Safety Trophy.¹⁶ The final prewar sample in that line of development was the Douglas A-20 (the DB-7 in British service) which was produced in great numbers and remained a workhorse throughout the war.¹⁷

It is hardly to be denied that in the 1930s the strategic bombing idea came to dominate Air Corps thought; nevertheless, the Air Corps Tactical School curriculum continued to include instruction on ground support all through the period. The authority on the subject, Robert T. Finney, wrote in 1955:

It is true that as concepts moved away from those derived from World War I experience toward the idea of an independent air mission, less emphasis was placed on aviation in support of ground troops. Nevertheless, a subsection of the Air Force course was entitled Aviation in Support of Ground Forces in which by the mid-thirties, the concept was taught that gaining air superiority was the most valuable contribution the air force could make to the ground campaign; next in importance was attacking enemy lines of communications. Except in unusual situations, airpower was not to be employed against targets within range of friendly artillery; in an emergency, all or part of the air force might be diverted to support of ground troops. A cardinal point in the air philosophy expounded at the school was that airpower had to be centralized to be effective either in a close-support or strategic role. The school opposed, vigorously and vociferously, the assignment of combat elements of the air force to Army formations.¹⁸

Nothing in that set of ideas would have made Arthur Coningham wince, and it was being taught to US Army Air Corps officers long before the Luftwaffe was to have its shot at them. It is to be noted that this was at the very time that the General Headquarters (GHQ) Air Force was being founded at Langley Field, and the concepts were not at all confined to fuzzy intellectuals of the school environment. General Headquarters contained all the combat aviation of the US Army except observation craft, and it was to report directly to the GHQ commander in time of war. Gen Henry H. Arnold, Carl Spaatz's closest friend, was the commander of the GHQ AF's 1st Wing on its founding, before he moved on to become

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Douglas A-20

By 1938, the Air Corps had moved away from single-engine ground attack aircraft to a multiengine concept as shown here. The A-20, designated "Havoc" by the Americans and "Boston" by the British, contributed significantly to the downfall of Rommel in North Africa. (Source: US Air Force)

assistant chief of the Air Corps under Oscar Westover (Spaatz had been Westover's assistant for operations during the airmail crisis and, later, the executive officer for the GHQ AF's 2d Wing at Langley). On 8 October 1937 Arnold, much more the practical man of affairs than the academician, lectured at the US Army War College. He pointed to the need for attack aviation to assault enemy airfields as a part of the air superiority campaign. He commended the Japanese for avoiding the wastage of airpower in small units against entrenched targets on the battlefield, and he condemned the air units in Spain that did not see the wisdom of it. Arnold thought one of the morals coming out of the Spanish story was this:

[One should] not detach the air force to small commands where it will be frittered away in petty fighting. Hold it centrally and use it in its proper place, that is, where it can exert its power beyond the influence of your other arms, to influence general action rather than the specific battle.¹⁹

The point is that notwithstanding what was stated in official Army doctrine, the main ideas characteristic of what was to be

the Western Desert Air Force were deeply imbedded in all parts of the US Army Air Corps all through the interwar period, though its officers had not made much headway among those of the other branches of the Army.

The Stimulus for Air Reorganization in Africa

If the principles of modern tactical air doctrine were already well understood among Air Corps officers long before the North African campaign, why did some say the official doctrine was so different from their concepts? Why did so many of the USAAF men welcome the aid of the RAF and Air Marshals Tedder and Coningham with such open arms? Why have the American airmen been so ready to attribute so much of their own success to the mentorship of the British? If the ideas were already so well understood among the American airmen, why were the British so assertive about teaching them? If the understanding of the US Army airmen was so similar to that of the RAF members, why was a major reorganization of the air forces undertaken in the midst of the campaign? If Lt Gen Sir Bernard Montgomery's famous speech on command in war was really written by Air Marshal Coningham, why did Monty put his name to it?

First, let it be noted there is no intent here to assert that the American airmen had nothing to learn and that they owed nothing to the leaders of the RAF for their instruction.²⁰ No one with even a rudimentary knowledge of the difference that combat experience makes on survival and on mission effectiveness would ever claim that one can learn all there is to be learned on the campus at Maxwell Field. Similarly, the impact of combat experience *in the theater* has been proved so vital in all wars that the USAF is quite careful to make a substantial investment in theater indoctrination training.²¹ What is being suggested is that most of the basic principles were already understood by the senior American airmen, and that what was to be learned were the many details arising from the peculiarities of the theater and from technical advances made since the previous war. Too, there was the problem of transferring the doctrinal insights held by RAF and USAAF senior leaders to operational personnel who would

implement them on the battlefield. Perhaps it is not too much to suggest that the RAF mentorship phenomenon has been somewhat exaggerated because of a wide variety of factors in addition to those associated with American disappointments on the battlefield. Among them might be sudden changes in strategy, the internal bureaucratic rivalry between the AAF and the rest of the Army, and some nationalistic concerns arising from the fear that the British Empire was waning.

We have seen that although the concentration of thought in the Air Corps of the thirties was clearly on strategic bombing, the concepts of tactical air doctrine were quite similar to those ultimately developed by the Western Desert Air Force. We have also noted that American soldiers and airmen had been marching according to a set of orders quite in harmony with the visions they had shared through the thirties—that it would take a substantial period of time to mobilize the industry and manpower for a multimillion-man army, and that, in the meantime, the air force would hold off the invaders for a time before the ground forces engaged. Therefore, the types of airplane needed for ground support could be safely put into the reserve forces and in the mobilization plans. But those types needed for independent action against the enemy during the mobilization period would have to be ready at the outset.

The US armed forces started their regeneration just after the Munich Crisis in 1938, but even at the time of Pearl Harbor, the *soldiers themselves* thought it would be a long time past 1942 before they could be ready to land on the hostile shores of France. It was (and is) an article of faith with them that an objective not only must be attainable, it also must be decisive. In their eyes, only the defeat of the *Wehrmacht* in northern Europe could be decisive. They were fully committed to the Germany First strategy and they supported the notion that an advance air force would be deployed to the United Kingdom to begin the weakening of the Germans. Eighth Air Force was constituted for that purpose, and its creation was quite in accord with the visions of soldiers and airmen that it should be equipped largely with fighters and bombers and that the organizations to be used for

ground support would come over later when the ground units were mobilized and deployed.

All this was called to a sudden halt by a political decision that overrode the vision of the airmen *and the soldiers* in the summer of 1942. In July the whole scheme was abruptly changed to involve major ground operations a whole year before anything beyond emergency landings in France had been contemplated. The sudden reversal required the constitution of Twelfth Air Force for the African campaign largely out of the body of Eighth Air Force. Necessarily, then, the Eighth's aircraft had not been optimized for ground support, and few of its aircrews had had any training at all in air-ground operations. As great as the Spitfire was for air combat, it was pretty poor for ground attack; those deployed with Twelfth Air Force did not even have bomb racks. The air forces cobbled together for Patton's deployment out of Norfolk came in large part from units that had trained for air defense, not for air-to-ground operations. The 33d Fighter Group, for example, which had been commanded by Brig Gen Elwood R. Quesada (always known as Pete) for some months prior to the African campaign, was assigned to First Air Force, the organization dedicated to the air defense of the northeastern United States. It was everything the groups could do to have the crews experience three launches from a simulated aircraft carrier catapult, much less to convert them from air defense to ground support missions.²² The point is that perhaps such inadequacy in air-ground work as existed may have arisen at least as much from the sudden change in strategy as from any doctrinal naiveté on the part of the USAAF leaders involved.

Correlli Barnett has argued that Bernard Montgomery, who was accustomed to moving forward only when he was fully prepared and certain that he had an overwhelming advantage, took on the Battle of El Alamein sooner than he had to. Barnett even suggests that Rommel would have been required to retreat by the Torch landings in his rear even if Montgomery had never moved on El Alamein. He suggests that the British were coming out of a long string of defeats and, had Montgomery waited until after Torch, he and Britain would have had to share the glory with the Americans. It was allegedly the last chance the Empire had for an independent

victory that would restore its prestige after the heavy blows suffered all the way from Norway to Singapore.²³ Whatever the merits of Barnett's argument, US soldiers came to Africa with the notion that the United States would now be required to pull British chestnuts out of the fire, as in World War I.

The isolationism mentioned above was too recent to be forgotten. Britain was among those nations which had not paid their First World War debts. The American soldiers and airmen had been dragged kicking and screaming into the African campaign in the first place. Also, while America's naval elite tended to come from urban areas in the coastal regions, the elite of her Army and its air forces still were disproportionately from the rural and interior regions, the very areas where isolationism had been the strongest and Germanic immigration the greatest.²⁴ The soldiers, especially, saw Torch as a peripheral action in the Gallipoli tradition which could not be decisive even if its objectives were attainable, and they suspected that the nefarious British schemes were to use Americans to sustain the Empire beyond its natural life span. Until this point, the United States, it is to be remembered, had long been first among the Third World powers—the leader of the anticolonial movement. That anti-imperial tradition, now largely forgotten, was still a part of the American mindset.

Nor can it have been pleasant to have the British go over the heads of the Army and air force leaders to the US president to have the services overruled. On top of that, American sailors generally wanted dearly to go to the Pacific to avenge Pearl Harbor—and the British were obstructing their way.²⁵ Thus it can be seen that the British had motives in addition to the mere promotion of military efficiency in their desire to centralize air command. The Americans had reasons other than the promotion of military effectiveness for suspecting their ally's motives.

There were some good logical administrative motives for the reorganization and centralization of the air and ground forces operating in the Mediterranean. One was the convergence of the Torch forces from the west with those coming from the east in the wake of the victory at El Alamein. Whatever else was afoot, a victorious air force (the Western Desert Air Force)

was with Montgomery only a hundred miles or so to the east of Tripoli when the Casablanca Conference opened. Soon it would be sharing the Tunisian airspace with Torch forces, and each would be commanded by headquarters many hundreds of miles apart.

Gen Dwight D. Eisenhower deployed only token forces into southern and central Tunisia for a couple of months after the landings. Not until Christmas Eve, when he thought he might be able to deploy American forces down into the Tebessa area and then thrust to the coast near Sfax, separating Rommel and von Arnim for good, did he give up on the initial plan to capture Tunis with a thrust along the northern shore. At the time of the Casablanca Conference (14–24 January 1943), he was setting up the US II Corps in the Tebessa region under the command of Maj Gen Lloyd Fredendall. However, when Eisenhower briefed the plan for the thrust to the coast, General Alexander suggested that it was rather risky to do it at an early time. Better to wait until Montgomery had arrived in Tripoli (which he did before the conference ended on 23 January 1943) and restored the port facilities sufficiently to receive new fuel supplies by sea. That way, Montgomery could participate in operations that would put Rommel between two active forces and therefore improve his own prospects for success. Eisenhower took the advice and canceled the II Corps plan for an offensive toward Sfax and instructed it to remain on the defensive.²⁶ For us, the point is that the activities of II Corps and its XII Air Support Command had probably not yet developed sufficiently to be a major cause of the reorganization and centralization decisions made at Casablanca.

Just What Was Learned from the RAF?

I have already argued on what was *not* learned from the RAF by the American airmen. Exactly what were some of the things they *did* learn? The American airmen were not as reticent as might be expected in admitting that they learned a great deal from their Allies.²⁷ Most of the doctrinal things were already known to the higher USAAF officers, though the wartime temporary officers were certainly not well schooled in those areas when they arrived in Africa. Some details, often

peculiar to the theater, were important and shared by the British. In the area of staff work, the RAF had the USAAF outclassed by a rather wide margin. That had been a factor in the 1942 debate over the wisdom of Torch, and the issue arose again during the Casablanca Conference.²⁸

Another area in which the American airmen had already learned a great deal was in the systems approach to air research and development. It could hardly have been otherwise, given the great advantage the British had achieved over the Luftwaffe in the Battle of Britain. Carl Spaatz and several other USAAF leaders who had deployed to Great Britain as observers became acquainted with some of the less visible parts of the British air defense system; for example, the radar reporting network and the command and control structure.²⁹

Another notable learning experience during the African campaign was that the British airmen enjoyed superior intelligence work compared to that received by the USAAF. Previously (and for a long time afterward) the elite of the air forces had disdained intelligence as a career field. Spaatz recognized this and moved to have Arnold identify some regular officers for deployment to his theater to learn intelligence with the intent to make it their career.³⁰ Similarly, in the Air Corps days, no right-thinking he-man aviator would willingly get into the planning field as a career move, and Spaatz recognized that the RAF had a large lead in that area. Therefore, in the same request, he also sought a group of regulars to train in-theater for a postwar career in planning.³¹

The RAF led the world into the radar age. It did so in air defense, in strategic bombing, and in tactical operations. In the early days of its operations at Thelepte (December 1942–February 1943), the 33d Fighter Group suffered casualties by the want of radar and suitable sites for its antennas. It also suffered from the want of an efficient reporting network. Here was another dimension of learning for Spaatz and the other American airmen. The American soldiers already understood the importance of grasping good landing grounds for the sake of air superiority. But the airmen and soldiers had to learn from the RAF that the high ground for radars had to be conquered along with the airfields if the Luftwaffe was to be defeated.³²

In all the interwar years before 1935, the Air Service and Air Corps had been organized geographically, which airmen found obnoxious. In 1935 the GHQ AF, as we have noted, was founded to centralize almost all air combat power of the Army under a single air commander. That was the ideal envisioned by most in the Air Corps. In Great Britain in 1940, and then again in Africa in 1942 and 1943, Spaatz was exposed to the British system of dividing its airpower according to function: Bomber Command, Fighter Command, Coastal Command, and so forth. After the war (and much to the horror of some on his staff), Spaatz, the commanding general, USAF, agreed with Eisenhower to split airpower into functional organizations: Air Defense Command, Strategic Air Command, and Tactical Air Command. That was very much against the GHQ AF ideal and in line with the British practice. Spaatz afterward claimed that he and Eisenhower based this decision on their wartime experience.³³

A certain internationalism among airmen resembles that formerly found among ordnance officers, making it difficult to identify the original source of ideas. It cannot be denied that the Americans learned a great deal from the RAF, and perhaps the main pillars of the tactical air doctrine that they carried into Torch had some of their origins in the RAF at some earlier time. Spaatz was most influenced by the French in World War I, for he had been the Air Service commander at 3d Instructional Center, Issoudon, where at the outset most of his instructors were French. Less well known is the fact that he spent a short period of temporary duty flying with the British in that war.³⁴ Gen Billy Mitchell had personal contact with Hugh Trenchard during World War I and, somewhere along the line, Spaatz also became acquainted with the father of the RAF. Even then, Spaatz was a protégé of Mitchell, and from 1922 to 1924 Spaatz was commander at Selfridge Field, Michigan, where Mitchell was a frequent visitor and even a house guest, the very period when Mitchell was highest on tactical airpower.³⁵ It seems likely, therefore, that Spaatz and the other erudite Americans began learning from the RAF many years before Torch and, from whatever source, they had already gained a pretty firm grasp of the major tenets of tactical air doctrine long before they encountered either Bernard Montgomery or Arthur Coningham. What remained to



Gen Carl A. "Tooey" Spaatz

Here pictured pinning a Legion of Merit on his executive officer, Capt Sally Bagby, General Spaatz headed the air units in the North African Campaign. Long pictured as a patron saint of the "Bomber Barons," Spaatz had actually been a fighter pilot and was a main developer of tactical air doctrine. (Source: US Air Force)

be learned by the American airmen, it seems to me, were the details of application in that environment. For the American soldiers, most remained unconvinced of the validity of the main doctrinal ideas of either British or American airmen.

On Cause and Effect

The winter of 1942-43 was one of those traumatic times when world-shaking events seem to tumble upon us in rapid succession. It was the time of Guadalcanal and Stalingrad. Midway was only a short time in the past. El Alamein was still

closer. Pearl Harbor, the Bataan Death March, and the Doolittle Raid were all fresh in our memories. There was a great convergence of both national and institutional interests in the Mediterranean Basin. In those helter-skelter times, it was all too easy for some with no time for thought and analysis to lose the trail of cause-and-effect and make inferential leaps. The sequence of events sometimes gets muddled, and sometimes personal or institutional interests prevent individuals who *could* unuddle it from doing so. Posterity, gazing back on that hectic winter, saw the shock of Kasserine immediately; only more slowly did it recognize that the arrival of the RAF air leaders in Northwest Africa, preaching the Western Desert Air Force doctrine, substantially improved the ground and air situations. Is it arguable that many observers made an inferential leap on cause-and-effect based on an apparent sequence of events, and that neither American nor British airmen had the time or motivation to question the validity of the inference?

What Were the Causes of the Turnabout in the Air?

It will not do to denigrate the importance of Arthur Coningham's significant role in the turnabout. The combination of his prestige, his optimism and self-confidence, his determination, his preference for offensive tactics, and his operational strategies all had their effect. But he did not arrive until the Battle of Kasserine Pass was well under way. The decision to put him in command of the tactical air war had been made at Casablanca well before II Corps was established in central Tunisia, so it is perhaps arguable that the turning of the tide in Tunisia involved much more than merely reorganizing the air command structure and importing a new doctrine.

As we have noted, to some extent Kasserine emitted a false signal. The airmen, at least in Rommel's view, got somewhat of a bad rap—airpower did not play as much of a role as Rommel feared because poor weather grounded both XII Air Support Command and the Luftwaffe. But Rommel's forces took a considerable beating on the way back through the pass, just

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Kasserine Pass

Site of defeat for US forces, Kasserine Pass is the most famous landmark associated with US air doctrine. (Source: National Archives)

as German forces did during the Battle of the Bulge in December 1944 when the weather cleared.³⁶

Another factor that is usually left out of the discussion about close air support in the period between the invasion and Kasserine is the artillery situation. American artillery forces have enjoyed a great reputation ever since Robert E. Lee felt their sting. One of the principal differences between the US Marine Corps and US Army's approaches to close air support revolves around the artillery. The Army is designed to fight sustained and large campaigns, which calls for ample artillery support. Guns and their ammunition are weighty and cumbersome, however—too cumbersome to be easily brought ashore in landing craft. The Marine Corps on the other hand, is designed for forcible entry, over the beach, but its operations are envisioned as much smaller and of short duration. Once the lodgment is secure, the Army is brought in and the Marine Corps units are withdrawn for other missions. Therefore, the Marines are much more lightly equipped with artillery, and their reliance on close air support is absolute. This is feasible because the Marine battleground is smaller

and the duration of flight is shorter as compared with the Army situation. It is therefore possible to provide much denser close air support for the marine than it is for the soldier. What is often lost in Torch discussions is that while the II Corps in central Tunisia was established in place, the artillery allotted above the division level was not. Insofar as the want of heavy fire support was a factor in the difficulties, it arose in part from the absence of heavy artillery. Some guns did arrive at the very last minute, which allowed for a measure of mayhem to be inflicted on the Germans as they passed back through the pass. But for us, the meaning is that not all of the weakness in fire support was due to the distance from usable airfields and the bad weather. Some of it arose from the bulkiness of the standard artillery and ammunition combined with the thinness of the transportation net leading from Morocco and Algeria to the battleground.³⁷

As bad as Kasserine was, it is also true that it was practically Rommel's last, best shot, and it did not work. Tactically, it was an embarrassment. Strategically, the German objectives were not achieved; there was no chance thereafter that the Allies would fail in Tunisia.³⁸ That became an established fact on 22 February, the day Rommel turned around, only four days after Coningham had arrived.

Another among the reasons the Allies would not again be defeated was that the tide of numbers was going strongly against the Axis. Tripoli was restored and, with the arrival of every convoy there from the east and with every one from the west, the weight of numbers improved for the Allies.

Whatever the impact of improved doctrine, leadership, and numbers, it is also true that the AAF gradually was able to improve its tactical radar system. This had been a serious difficulty at Thelepte in the early days when the absence of radar permitted Ju-88s to arrive over the field, do their damage, and scoot back in the direction of their bases before P-40s could launch and climb to altitude, or else the alternative, standing patrols over the base, would wear down our forces and guarantee that they would be outnumbered when the attack came.³⁹ However, as the campaign progressed, airfields became better developed, ground transportation for crews arrived, and most importantly, gaps in the radar screens were filled.⁴⁰

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The primitive conditions at Thelepte and the other fields, along with the absence of radar, wore down units and crew members so rapidly that it was hard to maintain experience levels. The 33d Fighter Group, for example, was withdrawn from Thelepte after a two-month stay because it was impossible to replace its losses as they occurred.⁴¹ Fortunately, after Kasserine, the flow of replacements improved and the achievement of air superiority, among other things, reduced the losses. This had the effect of increasing the experience level among crews, which also improved all aspects of air operations.

The opposite trend was occurring with the Luftwaffe. Its losses could not be replaced as easily, not only because of the interdiction of the line of communications but also because demands made on the Luftwaffe in other theaters, especially



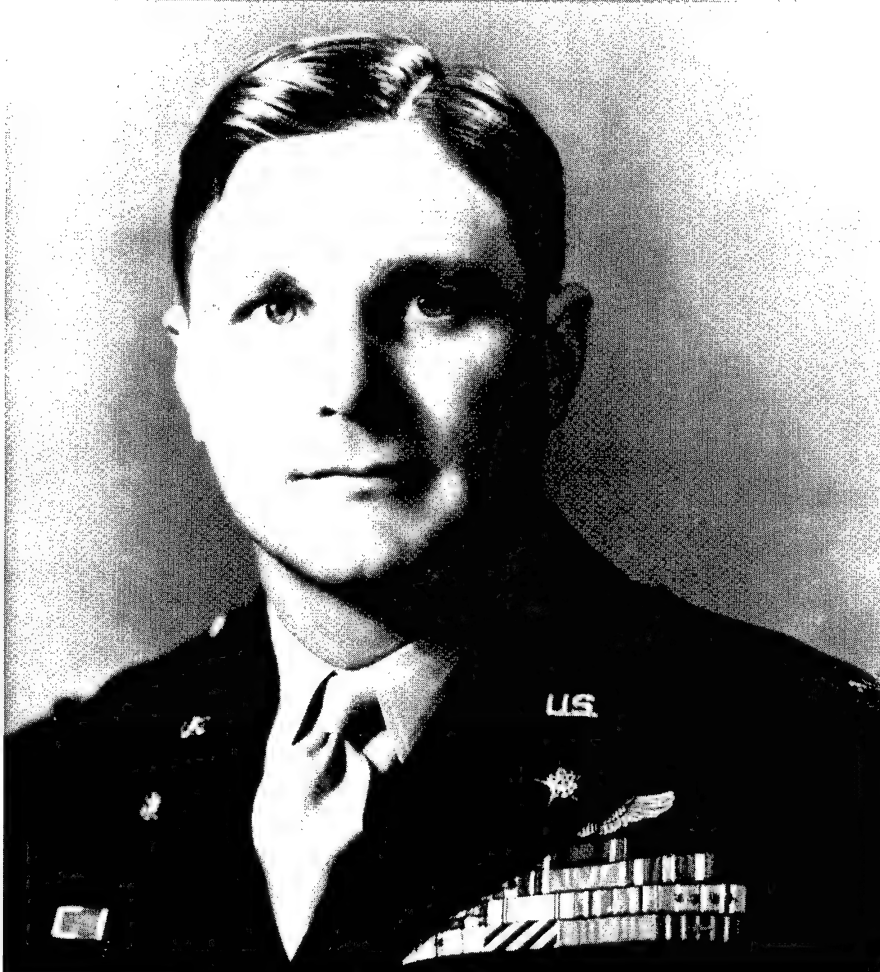
33d Fighter Group P-40s aboard the USS *Chenango*

The 33d deployed to North Africa with its P-40s under the command of Lt Col William W. Momyer, who later served on the Air War College faculty, the Tactical Air Command staff, and as commander, Seventh Air Force, in Vietnam. Momyer was a moving force in doctrinal matters. (Source: US Air Force)

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those at Stalingrad, made it impossible to satisfy the need for an adequate force in North Africa. Worse still, the Axis flyers' experience level was in decline just as the experience level of their Allied counterparts was rising.⁴²

Though the Luftwaffe was losing ground in terms of experience level in the wake of Kasserine, compression of the



Col William W. Momyer

Colonel Momyer actually had had some experience with the Western Desert Air Forces before he took command of the 33d in Southern Tunisia. His men faced rough conditions until US forces were built up after Kasserine. (Source: National Air and Space Museum)

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33d Fighter Group aboard the USS *Chenango*

The 33d fighters launched from the carrier directly onto the field at Port Lyautey. Only two planes were lost at sea, but the bombardment of the field by the Navy had so damaged it, that many planes crashed on landing. (Source: US Air Force)

Axis forces into a smaller region tended to increase the density of available antiaircraft and Luftwaffe units. At the time of Kasserine, the Luftwaffe had enjoyed an enormous advantage in terms of being able to operate from developed, all-weather airfields close to the battleground, while the Allied forces were on bases undeveloped and muddy and far from the action. However, after Kasserine, the Allied forces gave the Axis bases an increased pounding that first drove the bomber and transport units back to Sicily and beyond, and finally, the fighter units too. Gradually the ground forces captured those developed bases, and Allied air forces were able to move their operations into them, multiplying their effectiveness.⁴³

The improvement of airfields and increased air supplies in the weeks after Kasserine had a decided effect. At first C-47 units were pressed into inefficient service to haul such bulk items as bombs and gasoline to the forward areas, but gradually the air units were able to get somewhat better priorities on the sparse railroads of North Africa, and emergency measures to employ a whole sea convoy full of trucks bore fruit.⁴⁴

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Bell P-39

The P-39, shown here with a 33d Fighter Group pilot in North Africa, had been designated as an interceptor, but proved useless in that role because its lack of a supercharger so limited its high-altitude performance that it could not compete with German and Japanese fighters. Its propeller-hub-mounted 37-mm cannon did prove useful in ground attack, provided it had escort above from the Group's P-40s. (Source: US Air Force)

The first waves of airmen in Torch could not have had any theater indoctrination at all. In the years since, it has been repeatedly established that the first 10 combat missions are far more dangerous than all that follow. General experience is a major factor in achieving effectiveness, but theater experience is also vital. After the Twelfth Air Force was established ashore, a training command was set up, in part as a holding operation for the temporary assignment of incoming personnel en route to their units at the front and in part for theater acclimation. Later, instructor slots were manned with airmen who had finished their combat tours and who were held in theater for a time afterward so they could share their combat-wise knowledge with the new arrivals. This could not

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have had much effect before Kasserine, but the results were cumulative, and it helped turn the tide in the air.⁴⁵

Another item that had an enormous effect on the defeat of the Luftwaffe was Ultra intelligence. Increasingly after the Battle of Kasserine, the combination of superior intelligence and the appropriate use of airpower against the Axis supply line allowed for interdiction both at sea and in the air. Not only were some famous massacres on Luftwaffe formations achieved but also supplies to the survivors in Tunisia dwindled, either putting them out of the fight or forcing them to move north.⁴⁶ All this had little to do with any changes in either the organization of air forces or changes in tactical air doctrine.

Doctrine and leadership also got some of the credit that might have belonged to climate. With time, the rainy season ended. Air forces that were mired in mud due to rain and the



A casualty of war

A part of the reason that the US Army Air Forces were not enamored with the dive bombing practiced by the Luftwaffe and the US Navy was that it was seen as flying right down the barrel of an antiaircraft gun. The Army preferred low-level, high-speed bombers and fighter-bombers, thought to be less vulnerable. But the A-20 was not invulnerable, as shown by this casualty of the war against Hitler. (Source: US Air Force)

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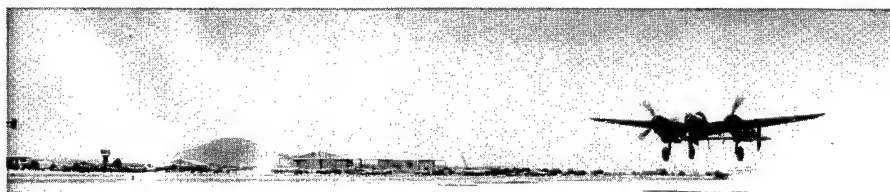


North American B-25

Here seen over Tunisia, the B-25 medium bomber was employed against enemy airfields in North Africa. (Source: US Air Force)

absence of paved runways and hardstands were suddenly freed. The Luftwaffe's advantage in operating from developed fields was thus diminished by the return of good weather.⁴⁷

In Vietnam it could be argued that Linebacker II often gets the credit for a "victory" that should be credited to the Strategic Arms Limitation Treaty (SALT I), the rapprochement with Peking, and the election of 1972. Similarly, between the end of the race for Tunis and the coming of the spring, remote political factors helped turn the tide against the Axis in Tunisia. The Fifth Army and substantial air forces were retained in Algeria and Morocco against the possibility that



Lockheed P-38

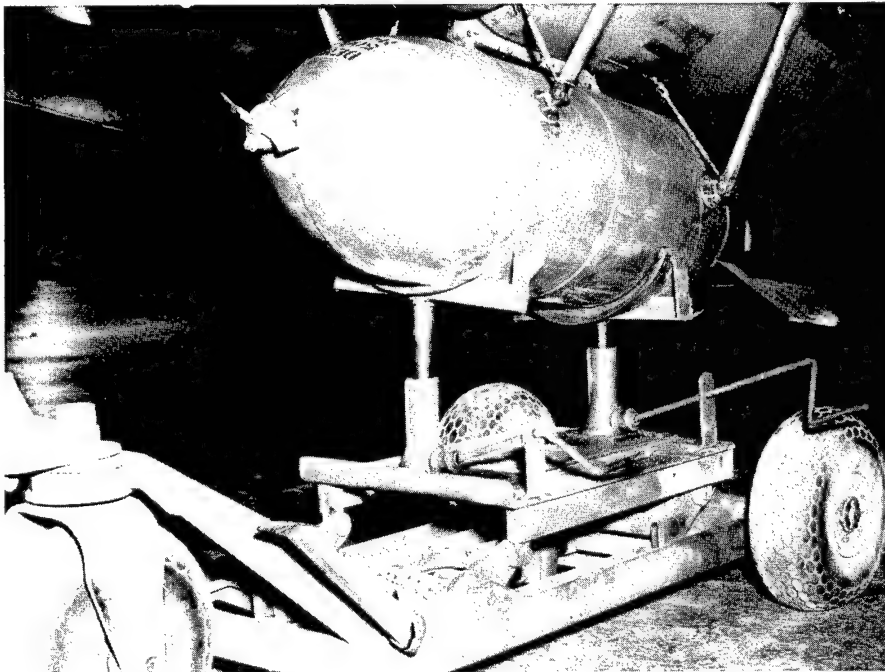
The P-38 Lightning was a mainstay of US air forces in North Africa. This one is taking off from La Senia Airfield in Algeria. (Source: National Air and Space Museum)

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Douglas A-20

A rare sight since Allied bombers could not normally bomb at low altitudes without devastating losses, these Havocs are unloading over a Nazi airfield in eastern Tunisia. (Source: National Archives)



P-40 bomb load

Armors "bomb up" a P-40 for a ground attack mission. (Source: National Air and Space Museum)

the Spanish would thrust southward across the Allied line of communications through the Straits of Gibraltar. With time, it became increasingly clear that Francisco Franco had realized the wisdom in remaining neutral, and it became possible to redeploy those forces against Rommel and von Arnim, further increasing the Allied numerical advantage.⁴⁸

Thus, it is hardly to be questioned that the contribution of the officers of the RAF and the application of the doctrine they had employed in the Western Desert Air Force were substantial to the victory in Tunis. It is also to be noted that many other factors influenced the outcome and quite possibly were operating to force the Axis out of Africa, even had the organizational and doctrinal changes not occurred.

The Role of the RAF?

What, then, might be tentatively identified as the real role of the RAF in the Tunisian campaign? Clearly, it did teach much to the American airmen. Yet, that part of the work might not have been as revolutionary as some have thought. I propose the possibility that the American airmen already had a conceptual framework for the application of tactical airpower that was very similar to Tedder's and Coningham's. What was taught to the US airmen might well have been primarily how to apply these concepts to the problem at hand. It also seems clear to me that the American soldiers did not hold a vision of air war that resembled the one held by British air leaders.

Perhaps it would be accurate to modify the conventional historical view of the RAF's role to say that the prestige it enjoyed from support of a victorious ground officer (Montgomery), combined with the frustrations of the US Army's first campaign, enabled British *and* American airmen to sell *some* American ground officers on the main ideas of the vision common to airmen of both countries. It also seems fair to say, with the passage of time, that even this achievement was strictly limited. The Marshalls and Eisenhowers of the ground forces certainly gave at least lip service to the idea and the support of a separate air force in the postwar years. But it is questionable whether many of the middling and junior officers of the Army were ever sold on the priority of interdiction over close air

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Gen Dwight D. Eisenhower and Maj Gen James H. Doolittle

General Doolittle, commander of the Northwest African Strategic Air Force—as well as the Twelfth Air Force—after the Casablanca reorganization, receives the Distinguished Service Medal from General Eisenhower, Allied commander in chief. General Spaatz looks on. (Source National Air and Space Museum)

support. As recently as the spring of 1993, a faculty member of the National Defense University, Dr. Alan Gropman, was pessimistic on the subject. He asserted that the current joint force air component commander system used in Desert Storm still has only papered over the problem of a lack of centralized control of airpower at the theater level.⁴⁹

The Role of Carl Spaatz?

How did Gen Carl A. Spaatz fit into all this? I for one do not believe he needed much persuading of the wisdom of the notions that controlled the organization and employment of

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the Western Desert Air Force. Rather, as a key member of the interwar Air Service and Air Corps, he shared the corporate attitudes that arose during the First World War and which persisted in the American air arm in all the years between the wars. This set of ideas, or at least the main framework, I would argue, was very similar to the one that the British had evolved between Dunkirk and El Alamein. But many of the notions were indeed alien to most soldiers in the American Army, and perhaps remain so today, to a certain extent.

Insofar as Eisenhower was the main driver of the decision to bring Spaatz to Africa, perhaps his most compelling reason for doing so was the difficulty he was experiencing regarding the rivalry between American airmen and their British counterparts. Eisenhower himself is often painted as the great facilitator, the great integrator of the efforts of temperamental nationalists from various countries. Spaatz



Maj Gen Carl Spaatz and Air Chief Marshal Sir Arthur Tedder

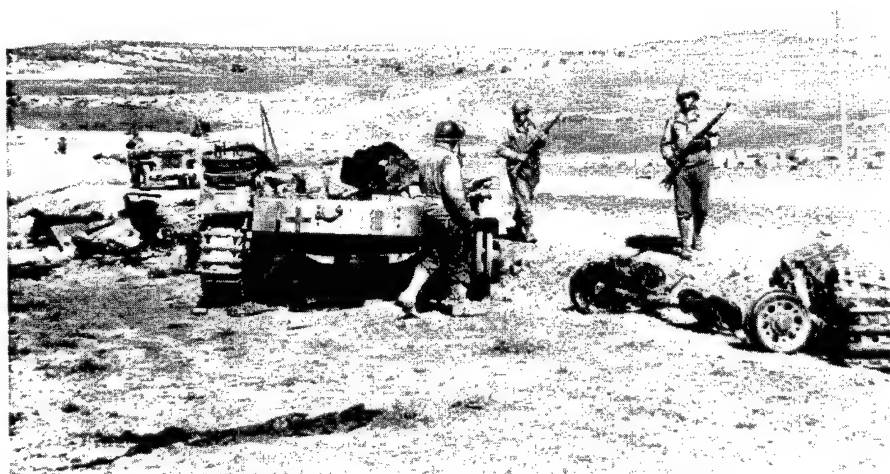
General Spaatz confers with Air Chief Marshal Tedder shortly after the Casablanca Conference (January 1943). (Source: National Air and Space Museum)

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Allied medium anti-aircraft gun

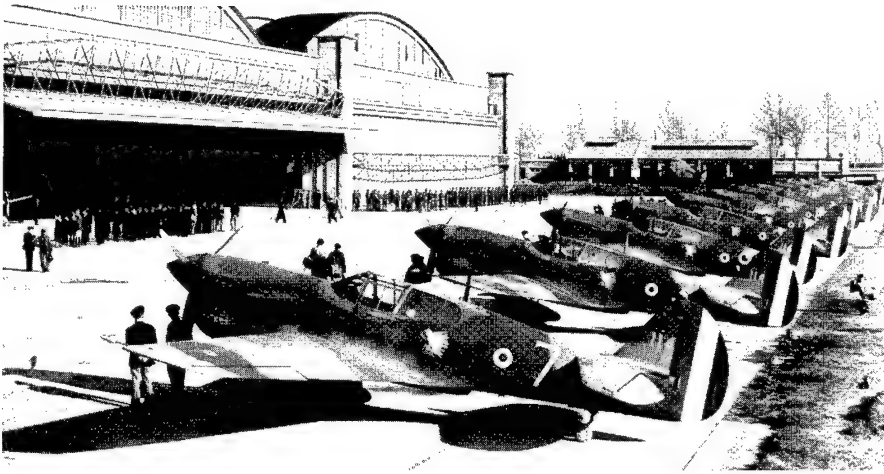
One of the reasons for the demand that Allied planes provide continuous air cover—disapproved by doctrine—was a lack of anti-aircraft guns. This one protected a desert air base. (Source: National Archives)



Remains of German tank

US Army infantrymen inspect a German tank destroyed by air in the successful Allied counterattack at Kasserine. (Source: National Archives)

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French P-40s

French air forces helped make up the Allied air team in North Africa. Here, the French accept US P-40s in an official ceremony. (Source: National Air and Space Museum)



German General Jürgen von Arnim

Commander of German forces in North Africa after Rommel departed, General von Arnim surrendered to Allied forces on 13 May 1943. (Source: US Air Force)

may also have made his main contribution in the same arena. He provided an important service in causing the airmen and the soldiers of the US Army to move in the same direction. His previous service with the British in 1940 and earlier had promoted many friendships that helped smooth the troubled waters around proud RAF men and confident USAAF flyers. As we have shown, he did not always please his British allies, but his low-profile method of leadership was certainly less aggravating to the RAF men than those of some of his more abrasive countrymen—George S. Patton, for example.⁵⁰

Conclusion

I believe that the new studies on tactical airpower in the African campaign cited here and a revisit to some of the primary sources associated with the role of Carl Spaatz justify at least a slight readjustment of some of the conventional views of the experience. Most of the ideas sometimes said to have originated in the Western Desert Air Force and then taught to the American airmen were already common among the latter. Vietnam, among many other wars, showed that airmen benefit greatly from a theater indoctrination, no matter how experienced they are when they arrive. Perhaps this is what the RAF leaders did for the USAAF senior leaders in Tunisia. Perhaps a more important role for the RAF was to help the American airmen sell their common ideas to the US soldiers. In this, I would argue, the airmen were none too successful. The US Army has rebuilt its own combat air arm with rotary wings. The main thrust of Gen William W. Momyer's *Airpower in Three Wars* is that, notwithstanding the enthusiasm of Laurence S. Kuter for the achievements of FM 100-20, the centralized control of airpower was never truly achieved in that or any of the subsequent American wars.⁵¹

The recent writings of some official USAF historians, it seems to me, are significant in their readjustment of some of the older views. Richard Davis certainly seems correct in his remarks that Spaatz was less the neophyte student than a fully matured airman—one who greatly facilitated cooperation between soldier and airman (though that task

was somewhat distasteful to him) and between American and Briton.⁵² Davis also rings true when he points out that, notwithstanding George Marshall's approval of FM 100-20 in July 1943, many in the Army Ground Forces, including the commanding general, were unpersuaded. He is equally correct in pointing out that Spaatz remained skeptical that the problem had been solved and that Spaatz was an undoctrinaire leader prepared to ignore the party line when it got in the way of effectiveness. Daniel Mortensen also contributes toward an adjustment in the conventional interpretations in his *Pattern for Joint Operations*. He shares some of the ideas attributed to Davis and makes the point that the notions associated with the Western Desert Air Force were not at all unique to the RAF.⁵³ He also points out that American airmen shared some of the ideas but many of the soldiers did not, even to the point of ignoring compromise ideas already in FM 31-35, *Aviation in Support of Ground Forces*, or in directives from Eisenhower. Yet, the interpretations of Davis and Mortensen and a few other authorities have received little notice outside official history circles of the USAF. Perhaps it is now time for the larger community of military historians to consider some of their writings and to circulate them to a wider audience.

Some questions for consideration might include these: Is coequality to some degree synonymous with the more modern term "jointness"? Is it in the order of things for the organization in the driver's seat to reject notions of equality and jointness? Is it natural for services seeing themselves as number two to press hard for coequality and jointness? Everybody in sight now protests the uniqueness of the Desert Storm experience, but the protests from folks with an Army or Navy background come with more conviction than the protests coming from airmen. Is the plea that Desert Storm was a wonderful application of the AirLand Doctrine an assertion (similar to the old USAAF cries for coequality) really only a belated, tacit recognition on the parts of infantrymen that the tide has turned, that they are no longer the lords of battle? Does such a plea for jointness and coequality tend to mask a message of Desert Storm; that is, sometimes lives can be saved if surface forces move

from being the supported force beyond mere coequality into a position where they are indeed supporting forces? Is the new affinity among the sailors and many of the soldiers for jointness and coequality a tacit admission of a fear that this might be the wave of the future? Is it possible that this affinity for jointness can sometimes itself be an expression of parochialism? Would it be possible for jointness to become as obsessive as strategic bombing is said to have been in the old Air Corps? If indeed these things tend to mask real options for some future conflicts, are we in danger of permitting greater human losses than necessary for the sake of interservice harmony?

For the sake of both history and the future, then, would it be both kinder and more accurate to reject the image of a USAAF glider in the propwash of the RAF? Instead, might a truer view be the RAF and the USAAF as both members of a flight, with the USAAF often on the wing but sometimes in the lead? Is it time to recognize in doctrine that sometime, somewhere, it may be appropriate that these air forces be the supported flight leaders, with their respective surface forces traveling as the supporting wingmen?

Notes

1. Quoted in Thomas A. Bailey, *A Diplomatic History of the American People*, 7th ed. (New York: Appleton-Century-Crofts, 1964), 182.

2. I do not mean to assert here that this is a universally held picture. Insofar as it has been the conventional wisdom, several modern authors have moved to correct it, including Richard Davis, Richard Hallion, Vincent Orange, and Daniel Mortensen. Their version, however, is largely embedded in official histories that have not yet received as wide a circulation as they have deserved. Mortensen's work is *A Pattern for Joint Operations: World War II Close Air Support, North Africa* (Washington, D.C.: Office of Air Force History and US Army Center of Military History, 1987), Hallion's is *Strike from the Sky: The History of Battlefield Air Attack, 1911-1945* (Washington, D.C.: Smithsonian Institution Press, 1989), and Davis's is *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Office of Air Force History, 1993). (Davis told the African part of the story with great effect in an internal USAF publication titled "Tempering the Blade," an Air Staff Historical Study dated 1989.) Vincent Orange's *Coningham: A Biography of Air Marshal Sir Arthur Coningham, KCB, KBE, OBE, MC, DFC, FC* (London: Methuen, 1990) was not produced in the United States until the Center for Air Force History republished it with a date of 1992. Some samples of what

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I think has been the conventional attitude include "Air Support in Tunisia?" *News Week*, 1 March 1943, as reprinted in *Cavalry Journal*, March-April 1943, 34, asserting that the RAF and the USAAF were too preoccupied with strategic operations to provide proper close air support; Gen Omar N. Bradley and Clay Blair, *A General's Life: An Autobiography* (New York: Simon and Schuster, 1983), arguing, (125), that among the British goals at Casablanca was one "to kick Ike upstairs and insert experienced British air and ground generals under him to run the war in Tunisia," (129), "Not only that, Ike's land, sea and air commanders were now all British and they were calling the military shots," and (151), "The British had fought a long, hard, costly battle across North Africa, and I admired their courage and battlefield expertise. But I was not convinced that they were infallible or as good as their press notices"; Wesley Frank Craven and James Lea Cate, eds, *The Army Air Forces in World War II*, vol. 2, *Europe: Torch to Pointblank, August 1942 to December 1943* (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983) (the official US Air Force history), remarking that after North Africa, whole air forces, the Ninth and Twelfth, became specialized in tactical airpower and that "What was at least as important, the NAAF incorporated the principles of air warfare which had been learned in the Middle East and demonstrated more recently by hard experience in Tunisia"; Joe C. Dixon, ed, *History of U.S. Air Power*, vol. 5, *Project Warrior Study Guide* (Gunter Air Force Station, Ala.: Air University Extension Course Institute, 1984) (a basic text still used in official USAF correspondence courses), 32, arguing that the AAF entered the war without an articulated air concept of employment and a lack of interest in ground support operations (it had to develop a doctrine under the stress of combat in North Africa, and the British came along to straighten it out); Hallion, (172-74), showing that the American airmen on the scene were greatly influenced by Air Marshal Arthur Coningham and were influential in the genesis of FM 100-20, which came to be seen as a disastrous AAF "Declaration of Independence" by many in the Army Ground Forces, and (149), explicitly saying that the US system owed its origins to the RAF desert experience; and George F. Howe, *United States Army in World War II: The Mediterranean Theater of Operations: Northwest Africa: Seizing the Initiative in the West* (Washington, D.C.: Department of the Army, Office of the Chief of Military History, 1957), (400), arguing that notwithstanding the wide opinion in AAF circles that the air support problems had been solved in Tunisia, disagreement was still wide on the issue of control among ground officers, and (674), citing German reports to show that the Germans shared the view that the AAF was the junior partner: "Benefiting from British experience and applying British principles, the Americans had achieved more effective air-ground cooperation"; James A. Huston, "Tactical Use of Air Power in World War II: The Army Experience," *Military Affairs* 14, no. 4 (Winter 1950): 166-200.

3. Robert H. Scales Jr., *Firepower in Limited War* (Washington, D.C.: National Defense University Press, 1990), 11-12. Erwin Rommel was on the

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other side of the hill and clearly would not have agreed with Colonel Scales: "The bad weather, despite the difficulties it gave us [the Germans at Kasserine] was actually very much to our advantage, as it prevented the enemy from bringing the full weight of his air force to bear, the effect of which, in the deep, ravine-like valleys, would have been very severe." B. H. Liddell Hart, ed; *The Rommel Papers* (New York: Harcourt, Brace, 1953), 403.

4. In his command diary for 3 January 1943, General Spaatz recorded a conversation that he had that day with General Eisenhower in which it was stated that it should become a matter of doctrine for ground and naval commanders to protect themselves from dive bombers and low-level bombers through antiaircraft artillery (AAA), especially light-caliber fire—and this, well before Kasserine. In the diary entry for 17 January, Spaatz reported visiting the II Corps commander, Maj Gen Lloyd Fredendall, and asserting to him that the only reasonable place for his air commander was right at his own headquarters. In a conference the next day with Eisenhower and other senior commanders, Spaatz discussed the use of "strategic" airpower during the anticipated retreat of Rommel from the Mareth Line. The question was whether to use it against Rommel in the south or to continue the emphasis on interdicting his line of communications across the Mediterranean through Bizerte and Tunis. The decision was in favor of interdiction, which is much more in accord with the ideas that Coningham would bring the following month, than it is with those of the ground commanders (of course, Spaatz had been in close contact with RAF men since 1940 and had flown with them in World War I, so attempting to pinpoint the origin of ideas is inexact at best). Diary of Gen Carl A. Spaatz, Carl A. Spaatz Papers, Manuscripts Division (MD), Library of Congress, Washington, D.C. (hereafter cited as Spaatz Papers), box 10. Gen Bernard Montgomery early in 1943 issued a famous pamphlet on the command of air-ground forces in war. It had been set in type and printed, and although the cover contained the caution, "Not to be Published," it was spread far and wide. One copy found its way into the Spaatz Papers and can be found in box 10. Bernard Montgomery, "Some Notes on High Command in War" (Maxwell AFB, Ala.: Air Force Historical Research Agency [AFHRA], January 1943). Most of the same ideas wound up in FM 100-20 published in Washington the following July. Although the pamphlet is dated January 1943, a conference on doctrine among high-level officers was organized and held in Tripoli on 16 February while the Battle at Kasserine Pass was in its early phases (the airfield occupied by the 33d Fighter Group at Thelepte received orders to evacuate the next evening). Though the document carried Montgomery's name, Arthur Tedder later remarked that it had been written by Coningham some weeks earlier. Orange, 132-34.

5. Montgomery, "Notes," Spaatz Papers, box 10; Orange, 130-32.

6. Howe, 147-70; Craven and Cate, *Torch to Pointblank*, 116-26; History, 33d Fighter Group, US AAFs, January 1941-5 April 1943.

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7. Craven and Cate, 124-40; Thomas J. Maycock, "Notes on the Development of AAF Tactical Air Doctrine," *Military Affairs* 14 (1950): 186-89.

8. Lee B. Kennett, "Developments to 1939," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, D.C.: Office of Air Force History, 1990), 16-26, 43; William C. Sherman, "Tentative Manual for the Employment of Air Service, 1919" in *The U.S. Air Service in World War I*, vol. 2, *Early Concepts of Military Aviation*, ed. Maurer Maurer (Washington, D.C.: Office of Air Force History, 1978). Sherman is quite clear on some of the very points that had to be made by Gen Carl Spaatz as he traveled about talking to both airmen and soldiers—and by my instructor pilot on my early training missions in Vietnam. One of Sherman's axioms was, "If the target is surprised, fire from the ground will not be severe, but if time is given for the preparation, the chance of loss of machines will be greater." Sherman, 373. My instructor's advice in 1968 was the same, "Never make a second pass at a drop zone." Sherman is especially clear on the reasons why rear area attacks are likely to be more productive than close air support. Writing in December 1924, the commander of the American Expeditionary Forces's Air Service and chief of Air Service, Maj Gen Mason M. Patrick, explicitly advocated the centralized control of airpower, at least in the early phases of a war, by a coequal airman. Maj Gen Mason Patrick, chief of the Air Service, "Reorganization of Air Forces for National Defense," report to the adjutant general of the Army, 19 December 1924, Spaatz Papers, box 3.

9. Maj Thomas D. Milling, "Air Tactics," draft Training Regulation 440-15 (Langley Field, Va.: Air Service Field Officers School, 1922), copy in US Army Military History Institute, Carlisle Barracks, Pa., C. H. M. Roberts Papers; see also William Mitchell, "Tactical Application of Military Aeronautics," lecture, US Army General Staff College, 1921, copy at Military History Institute, Carlisle Barracks, Pa., file number 97-10, in which Mitchell articulates many of the same ideas given in more elaborate form by Milling.

10. Milling was the assistant commandant while Spaatz was a student, and when he wrote his efficiency report at the end of the course he remarked that he would rather have Spaatz than anyone else in the world as a pursuit commander. Robert T. Finney, *History of the Air Corps Tactical School, 1920-1940*, USAF Historical Study No. 100 (Maxwell AFB, Ala.: USAF Historical Division, Air University, 1955), 54; Carl A. Spaatz 201 File, War Department, Adjutant General Form No. 67 (efficiency report), 18 June 1925, National Records Center, St. Louis, Mo.

11. Thomas D. Milling, "Air Tactics," draft regulation.

12. Lee B. Kennett, *The First Air War, 1914-1918* (New York: Free Press, 1991), 30.

13. Scales, 11, is one modern example.

14. Many of the exercises featured coastal defense, and those that envisioned cooperation with ground units were far more frequent than

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anything resembling attacks on cities or industrial targets. Maurer Maurer, *Aviation in the U.S. Army, 1919-1939* (Washington, D.C.: Office of Air Force History, 1987), 76-80, 108-11, 239-53. One example is expressed by Spaatz in which his forces defended against a US Navy simulated aircraft carrier attack on San Francisco. Maj Carl A. Spaatz to Maj T. D. Milling, letter, Fitzsimmons Army Hospital, Denver, Colo., 20 August 1930, Spaatz Papers, box 5. Spaatz's expressed ideas on coastal defense are very similar to those later given by Lord Tedder. Lord Arthur Tedder, *With Prejudice: The War Memoirs of Marshal of the Royal Air Force, Lord Tedder GCB* (London: Cassell, 1966), 244.

15. John William Ransom Taylor, *Combat Aircraft of the World: From 1909 to the Present* (New York: Putnam, 1969), 453, 476.

16. DeWitt S. Copp, *A Few Great Captains* (Garden City, N.Y.: Doubleday, 1980), 439.

17. Taylor, 489-90.

18. Finney, 36.

19. Kennett in Cooling, ed, *Case Studies in the Development of Close Air Support*, 48.

20. It seems likely that Eisenhower had more than American arrogance to worry about in his effort to preserve allied cooperation. Solly Zuckerman, *From Apes to Warlords: The Autobiography (1904-1946) of Solly Zuckerman* (New York: Harper & Row, 1978), 204, recalls,

After lunch on a day when Mary Coningham was with us, Tooe (Spaatz) led us there (to his quarters) to discuss an idea which had struck him. Mary, the successful Commander of the Desert Air Force, was not titularly under Tooe's command. But he had no great respect for his new superior. I doubt if he ever took the trouble to find out that however determined and obstinate he could be, Tooe was one of the kindest, most modest and most generous of men. Without a word, Mary suddenly got up and moved into the garden where we could see him picking blossoms from a hibiscus bush. He then returned and bent down on one knee in front of Tooe saying, as he proffered the flowers, "Master, I bring you these," Tooe was not amused. He knew well enough that the gesture was Mary's way of indicating that he had nothing to learn from an American general who had been in the war for less than a year. It was the first occasion on which I saw personal Anglo-American relations go wrong at that level.

Lord Tedder was much more discreet in his public life, but certainly was not free of any annoyance, remarking in Tedder, 160-61, 209:

I could not deny that by now the charms of General Brett's company were beginning to pall. After a talk with him on the afternoon of 25 September I wondered in my journal how he and all the American visitors could lay down the law about things of which they knew next to nothing. . . . I hoped, but without

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undue confidence, that Brett was not going to make trouble. I feared that he suffered from the apparently not uncommon American complaint of going off at half-cock with sweeping criticisms and proposals. . . . And Finally . . . Indeed, the only bright patch in the clouds (after Pearl Harbor) was that the Americans openly said that they would no longer go about telling us how to do our job . . . (after another visit with General Brett) . . . I gathered that all our Americans were not quite so convinced now that they knew all about everything. This, at least, was a relief.

It appears that Tedder was no more entranced with Carl Spaatz's company. According to Vincent Orange, in the privacy of his correspondence with Chief of the Air Staff Air Chief Marshal Portal, he complained that American nationalism was disruptive. Tedder thought that much of the trouble came from Spaatz himself, and from the congenial but incompetent people he kept around him. He reported that Spaatz himself was an incompetent and a "paranoid" Dutchman, and regretted that he, Tedder, had to consume so much of his own time "jollyng" the American general. Orange, 165.

21. In the wake of the disappointments in the air battle over Vietnam, both the Navy in its Top Gun Program and the USAF in its Red Flag Effort at Nellis AFB implemented the relearned lesson—that the first 10 missions are the most dangerous by far. Red Flag is explicitly dedicated to provide as close a simulation of those first 10 combat missions as is possible in a training environment. The expense of building these two ranges and training programs was very substantial, but the Top Gun effort was on the line soon enough to have had discernable results in the last part of the Vietnam War, and all reports assert that the outcomes of Red Flag have also been substantial. Briefing, USAF Fighter Weapons School, Nellis AFB, Nev., 2 June 1992.

22. Gen Elwood R. Quesada, interview, 1975, Military History Institute, Carlisle Barracks, Pa., Quesada Papers; History, USAAF, 33d Fighter Group, January 1941–3 April 1943, AFHRA, GP-33-HI, 31-7; Gen William W. Momyer, interviewed by Lt Col John N. Dick Jr., 31 January 1977, AFHRA, K239.0512-1068. It is often written, as with Colonel Scales's complaint above, that as a result of inadequate American air-ground doctrine, forces arrived before the battle at Kasserine without aircraft optimized for the work. Scales speaks of the Stuka as some sort of ideal. If the RAF was the senior partner on the Allied side, then one would suppose that its appropriate doctrine would have resulted in such dedicated aircraft, but it did not. The Western Desert Air Force was equipped with the same Spitfires and Hurricanes that had been built for air defence. Neither was all that impressive in the ground attack role; neither had much loiter time, both had liquid-cooled engines, the Spitfire came in without any bomb racks, and the early models came with .303 caliber guns. Clearly, the American P-40 of the day was not the match of the Spitfire or the Bf 109 in air fighting, but it did come with bomb racks and its guns were the .50 caliber type. Lord Tedder's memoirs are shot through with complaints that

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the Americans were not staying up with their delivery schedule of Kittybombers to the Western Desert Air Force. The Americans did deploy an airplane that they had tried to optimize for ground attack, the A-20, arguably having done as good a service as the Stuka. The Stuka had been quickly driven out of the Battle of Britain because of its vulnerability, and it was largely confined to the Russian front in the latter stages of the war. Whatever the doctrinal connection with technology, it does not appear that the Luftwaffe or the RAF did a whole lot better than the Air Corps when it comes to specialized equipment for cooperation with the ground forces. Tedder, 78, 271, 272, 280, 315, 342, 343, 347; see also Taylor, 177-78, 386-89, 426-32, 487-90.

23. Correlli Barnett, *The Desert Generals* (Bloomington, Ind.: Indiana University Press, 1960, 1982), 272. Arthur Coningham himself (whose relationship with Montgomery soured considerably after El Alamein) has remarked, "If it hadn't been for the landing in Tunisia, Rommel would have met the other Germans and we would have been sent flying back to Egypt. Once Monty had his reputation, he would never risk it again." Later the interviewer, Forrest Pogue, remarked that Coningham "Thinks Monty's feeling was (and one in which many British shared) that the British strength was ebbing in comparison with the American, and that as the war went on, the Americans would show up well and it would seem that the British, who had suffered so many times, would have to eat humble pie again." Air Marshal Sir Arthur Coningham, interviewed by F. C. Pogue, 14 February 1947, U.S. Army Military History Institute Archives, Carlisle Barracks, Pa., Office of the Chief of Military History Collection.

24. Morris Janowitz, *The Professional Soldier: A Social and Political Portrait* (Glencoe, Ill.: Free Press, 1960), 79-101.

25. Bradley and Blair, 125-33; Stephen E. Ambrose, *Eisenhower*, vol. 1, *Soldier, General of the Army, President Elect, 1890-1952* (New York: Simon and Schuster, 1983), 179-84. How the United States became transformed from being the ideological leader of the Third World into being its most hated enemy for having taken up the torch for the imperial powers in World War II, especially those in the Mediterranean, is explained. Scott L. Bills, "The United States, NATO, and the Colonial World," in Lawrence S. Kaplan and Robert W. Clawson, eds, *NATO After Thirty Years* (Wilmington, Del.: Scholarly Resources, 1981), 149-64.

26. Martin Blumenson, *Kasserine Pass* (New York: Jove, 1983), 90-96; Howe, *Northwest Africa*, 373-76; Dwight D. Eisenhower, *Crusade in Europe* (New York: Da Capo, 1948, 1977), 135-36.

27. The official history of the USAAF remarks that "the NAAF incorporated the principles of air warfare which had been learned in the Middle East and demonstrated more recently by hard experience in Tunisia. . . . The outstanding exponents of Middle East Doctrine now held key positions in the new setup: Tedder as head of Mediterranean Air Command and Coningham at Northwest African Tactical Air Force." Craven and Cate, *Torch to Pointblank*, 164. "Maori Coningham was the first man whose force

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of personality and performance established that (centralized command of tactical air at the theater level by a coequal and collocated air commander) as a principal [sic] and the Army was willing to accept it." Quesada interview, 1975, 32. Gen Carl A. Spaatz is less direct, but he does occasionally credit the RAF for some lessons for the USAAF and especially for some assistance in educating our own ground officers. He also remarked that the British had some things to learn from the USAAF. Gen Carl A. Spaatz, North Africa, to Gen Henry H. Arnold, Washington, letter, 24 May 1943, Spaatz Papers, box 11.

28. Tedder, 388.

29. Gen Carl A. Spaatz, "Leaves from My Battle of Britain Diary," *Air Power Historian* 4 (Spring, 1957): 66-75. Incidentally, General Spaatz made a telling comment about his view of the problem: "It takes close coordination with the Army to achieve the maximum misuse of air power." Spaatz, "Diary of Brigadier General Carl Spaatz on Tour of Duty in England," Spaatz Papers, box 7.

30. Spaatz to Arnold, letter, 24 May 1943.

31. Ibid.

32. Ibid. Spaatz expressed an early view of the current notion that armies could sometimes be the supporting rather than the supported force.

33. Gen Carl A. Spaatz, interviewed by Alfred Goldberg, 19 May 1965, Historical Research Agency, K239.0512-755, 34. The system set up by Eisenhower and Spaatz persisted for most of the time since the end of World War II. Only in 1992 was the combat airpower of the USAF again concentrated in a single command in the new Air Combat Command, which like the GHQ AF was based at Langley AFB. Even at that, some air units remain assigned to the commanders in chief of the overseas theaters.

34. From 7-12 February 1918, Spaatz was assigned to temporary duty with the 11th Wing of the Royal Flying Corps. US Army Air Service, Form 213, "Personal Report—Officers," February 1918, Xerox copy in possession of David R. Mets.

35. Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power* (Bloomington, Ind.: Indiana University Press, 1964, 1975), 24-25; Mrs. Carl A. Spaatz, interviewed by David R. Mets, 25 March 1982, 27 June 1982, and 12 April 1984, transcripts in possession of David R. Mets.

36. Craven and Cate, *Torch to Pointblank*, 160; Daniel R. Mortensen, *Pattern for Joint Operations: World War II Close Air Support, North Africa* (Washington, D.C.: Office of Air Force History and US Army Center of Military History, 1987) 70; Hallion, 170-71.

37. Ambrose, 230-31.

38. Charles B. MacDonald, *The Mighty Endeavor: The American War in Europe* (New York: Da Capo, 1969, 1986), 138. MacDonald, an eminent Army official historian, provides evidence on the persistence of the attitude that FM 100-20 was not as persuasive as Laurence Kuter thought: "Only once during the day did American fighter planes appear, and they retreated quickly [during the Kasserine battle]. It was an all too common example of a

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lack of coordination between forces that fought on the ground and those that fought in the air. American airmen at this stage in the war saw their role in only one dimension: they had a calling to defeat the enemy's air forces, a strategic assignment; the tactical mission of supporting their own troops on the ground inspired little consideration." [128] Coming from such prominent scholars as Dr. Alfred Goldberg and Lt Col Donald Smith, recent and not infrequent assertions make it difficult to reject the following glum view: "Since close air support is the point where the Army and the Air Force have their most intimate and important operational connection and relationship, it is perhaps inevitable that the problem exists, that it is a source of great concern, and that it now receives prompt and thorough scrutiny from both services. Nevertheless, or perhaps therefore, all efforts to resolve the close air support issue have been unavailing," and later, "This is a fundamental divergence which has always existed and defies resolution because it is instinctive, rooted in the experience and psychology of the respective services." *Army-Air Force Relations: The Close Support Issue*, RAND Report, R-906-PR (Santa Monica, Calif., 1971), 39, 43.

39. Philip G. Cochran speaks of having no radar at all, with pilots' quarters sometimes a 45-minute walk away from the field and with no ground transportation available. Philip G. Cochran, interviewed by Office of the Assistant Chief of Air Staff, Intelligence, 28 June 1943, HRA, No. 142.034-2.

40. Gen Carl A. Spaatz, North Africa, to Gen Henry H. Arnold, Washington, letter, 7 March 1943, Spaatz Papers, box 11; Spaatz to Arnold, letter, 24 May 1943.

41. Col Steward W. Towle, USAAF VIII Fighter Command, "Report on North African Mission" (Colorado Springs, Colo.: USAF Academy Library, 10 April 1943), Special Collections, James Parton Papers, box 1; History, USAAF 33d Fighter Group, January 1941-5 April 1943, HRA, GP-33-HI.

42. Williamson Murray, *Strategy for Defeat: The Luftwaffe, 1933-1945* (Maxwell AFB, Ala.: Air University Press, 1983), 159-65.

43. Spaatz noted the importance of seizing terrain suitable for both airfields and radar close to the battleground. Spaatz to Arnold, letter, 7 March 1943.

44. Gen Carl A. Spaatz, North Africa, to Gen Henry H. Arnold, Washington, letter, 18 February 1943, Spaatz Papers, box 10. General Eisenhower commented on the difficulties in transporting airfield construction materials. Gen Dwight D. Eisenhower, North Africa, to Gen Henry H. Arnold, Washington, letter, 21 November 1942, Eisenhower Library, Abilene, Kans., Pre-Presidential Files, box 5 (hereafter cited as Eisenhower Papers). Eisenhower, 148.

45. Craven and Cate, *Torch to Pointblank*, 58-60, 750; Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, vol. 6, *Men and Planes* (1955; new imprint, Washington, D.C.: Office of Air Force History, 1983) 614-628; "Training and Simulation: Filling the Missing Link," *Jane's Defence Weekly*, 13 April 1991, 606-09; Lon O. Nordeen Jr.,

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Air Warfare in the Missile Age (Washington, D.C.: Smithsonian Institution Press, 1985), 44, 75, 209; Air Vice Marshal J. R. Walker, *Air Superiority Operations* (London: Brassey's, 1989), 157.

46. Richard G. Davis, *Tempering the Blade: General Carl Spaatz and American Tactical Air Power in North Africa, November 8, 1942-May 14, 1943* (Washington, D.C.: Office of Air Force History, 1989), 86-91.

47. Eisenhower, *Crusade in Europe*, 116-17.

48. MacDonald, 125.

49. Alan Gropman, Industrial College of the Armed Forces, "How Much Aerospace Force Is Enough for the New World 'Order'?" speech, USAF Deputy Chief of Staff for Plans Conference, Washington, D.C., 16 March 1993.

50. In the privacy of his diary, Eisenhower expressed reservations about Spaatz's leadership capability, but he cites Spaatz's value as a member of an allied team. Dwight D. Eisenhower, *The Eisenhower Diaries* (New York: Norton, 1981), 94-5. Publicly, Eisenhower is explicit in saying that he brought Spaatz down to Africa to coordinate between the Allied air forces, and he implies that Doolittle was not doing very well in that task. Eisenhower, *Crusade in Europe*, 122.

51. Gen William W. Momyer, *Airpower in Three Wars* (Washington, D.C.: Office of Air Force History, 1978).

52. Davis, 110-20.

53. Mortensen, *A Pattern for Joint Operations*, 74-77.

The Legend of Laurence Kuter

Agent for Airpower Doctrine

Daniel R. Mortensen

Of many operational and organizational problems and issues that came to the forefront in the first Allied campaign—Operation Torch in Northwest Africa, November 1942 to May 1943—one persistently grips Air Force attention: Who commands the air units that support surface forces? It was no different in 1943 from the way it is today. Control is a focal issue whenever air and ground forces operate together. Earlier histories maintain that the early failures of Torch, especially the Battle of Kasserine Pass, can be blamed on ground leaders who, in controlling air resources, failed to listen to their airmen and failed to apply modern air principles in the early campaign against the Axis forces.

The story continues, some parts glazed in myth, that the British came to the rescue. With their battle-tested insights, they convinced harried American ground commanders to change the way air warfare was organized and fought. Air Chief Marshal Sir Arthur Tedder, leader of Middle East Air Forces, and Air Vice Marshal Sir Arthur Coningham, commander of the operational Western Desert Air Forces that fought Rommel, are best remembered in this advisory capacity. On the other side of the Allied aisle, tradition has it that Brig Gen Laurence S. Kuter, inveterate promoter of Air Force independence who served as a deputy to Coningham in Tunisia from February to April 1943, absorbed new concepts for tactical air organization and practices. On returning to Washington, Kuter organized these key ideas into a formal doctrine that, among lesser issues, proclaimed equality between air and ground commanders and described a priority system for the employment of tactical aviation.

Convention has it that Kuter successfully promoted a new measure of air equality, expanding the influence of airmen relative to ground commanders. Army Chief of Staff George C. Marshall, not one to instigate changes that might threaten

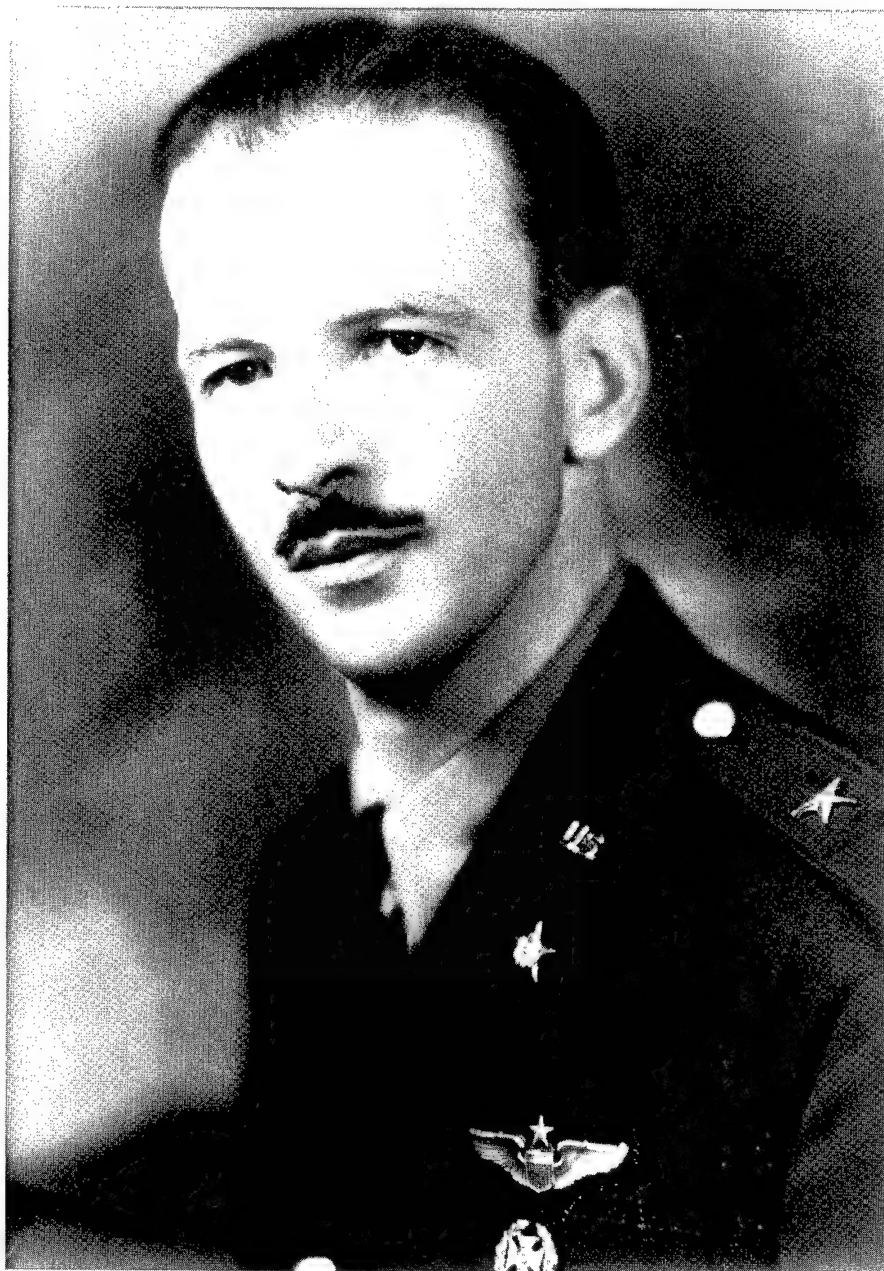
traditional command relationships, was persuaded, according to popular accounts, to accept the change because of intense British sponsorship. It has often been alleged that he gave quick approval to a dramatic new doctrine published in July 1943 as FM 100-20, *Command and Employment of Air Power*.

Kuter knew as well as anyone that publication of doctrine alone would not settle the issues, and he remained an active sponsor and promoter of FM 100-20 for many years after the war. Gradually, the lessons of Africa became a fixed underpinning for basic Air Force doctrine. For a long time, *Command and Employment of Air Power* codified and fostered Air Force independent command arrangements and certain favored concepts, such as air mission priorities and centralized air command, even after they ceased to reflect official doctrine. Several generations of Air Force officers have been reminded of the connections among independence, proper air practices, and North Africa in 1943.

On the other hand, historical research has suggested for years that conditions in North Africa were similar to those facing the early Korean defensive operations later memorialized as "Task Force Smith."¹ The lesson, seemingly an oxymoron on reflection, was that a quickly put-together, under-equipped military force, with untried and inadequately trained men sent out to fill a vital but nebulous defensive position, will suffer an embarrassing defeat if that force comes face-to-face with a tough and competent enemy force. The vaunted American cunning, resourcefulness, and bravery were not enough in North Africa; nor were they enough in Korea. Today, Americans don't want to fight unless they have a superior edge.

Careful studies of events in Africa show fewer problems with the air-ground relationship—and with control—than official histories record. Airmen at headquarters and airmen in the field were, by plan, already practicing a high degree of independent, centralized command when Torch started. Other procedures, particularly air superiority goals, were not neglected—they were simply unattainable in early 1943. Air leaders therefore put their effort towards a variety of missions to stem the tide until sufficient American resources could be

THE LEGEND OF LAURENCE KUTER



Brig Gen Laurence S. Kuter

Young and dapper, General Kuter was effective as a member of both the Army General Staff and the Army Air Force General Staff. (Source: National Air and Space Museum)

transported to North Africa. That left the situation open to criticism from unappreciative successors.

Published materials, including the official Air Force history (Craven and Cate's seven-volume *Army Air Forces in World War II*) are inconsistent and misleading: They depict background events that account for the development of new tactical doctrine. Evidence clearly indicates that Kuter did not write FM 100-20. The ideas expressed there did not originate with him, although he did make a hard claim to them. His specialty was airpower promotion in Washington, and his firsthand experience in Africa gave him credibility. If it is true that strategic planning in Washington should accurately reflect theater or field planning, then Washington did a questionable service by producing and imposing FM 100-20. The doctrine was more suited to service promotion than to practical application.

The celebrated manual did not reflect accurately British or American practices or principles—certainly not precisely the practices of American air commanders in Africa, Europe, or the Pacific. For example, the British held strongly to the importance of centralized air command and air superiority, but they praised *flexibility* rather than *priority* in field applications. As David Spire's study on Weyland and Patton in northwest Europe suggests, neither the principles of equality nor the system of combat priorities played so simply in the field, no matter their great importance in furthering the importance of aviation in American force structure.² A brief descriptive analysis of essential events in both Torch and the policy process at the War Department, filtered through new source materials, will help put the historiographic problem in perspective and illuminate some of our misunderstandings about FM 100-20.

Operation Torch

Allied powers—American, British, and French—did not mask their very intense national self-awareness and sensitivity about cooperation in Operation Torch. The intensity was evident in deliberations about organization, doctrine, and operational planning made during Torch's

lifetime: from August 1942 when the American military leaders grudgingly accepted the British proposal for a campaign in Northwest Africa, to May 1943 when sizable Axis forces surrendered in Tunisia. A number of agreements among the Allies compromised distinctive national agendas during that period, none more evident than the British agreement to have the inexperienced Lt Gen Dwight D. Eisenhower, commander of Allied forces in Northwest Africa, serve as theater commander. That agreement was instituted more for America's massive contribution of forces and materials than for Eisenhower's leadership qualities. Eisenhower had yet to demonstrate that he had any combat skills at all.³

The decision, late in the planning, to make three simultaneous amphibious landings (at Casablanca, Oran, and Algeria) temporarily interrupted plans that called for a centralized command of air resources. Units attached to Twelfth Air Force just after it was officially "constituted" on 20 August 1942 were separated into three segments, one subcommand for each landing. Planning documents made it clear that Brig Gen James H. Doolittle would regain control over his Twelfth Air Force units when effective communications facilities, denied by the separated amphibious landings, were established.

As it happened, some ground commanders who had argued against centralized air command threatened a postlanding problem with their published plans. Contrary to commonly held views, Eisenhower understood and promoted the centralized command of air resources, and he obligingly backed his conviction when Maj Gen George S. Patton demanded a permanent apportionment of air units for his own division's purposes after the landings were made secure.⁴

Tense dialogue over control of air resources continued after the landings, exacerbated by terribly deficient postlanding plans. Torch planners had not carefully considered contingency planning for a potential follow-on battle. That was made clearly evident when existing Allied forces failed to stand up to the sudden and dramatic enemy reaction in the Mediterranean.

Fierce battles and rapidly evolving conditions made monitoring by headquarters difficult. Countless observers who

came to Africa recorded contradictory reports that were collectively useless for evaluating and adjusting existing doctrine for follow-on battles. Postlanding plans stipulated that a moderate British force composed of commandos and parachute troops would move quickly into Tunisia to capture the northern port cities, thus preventing their use as a logistical base for the Axis. If all went well, a British division would follow the commandos into Tunis and Bizerte, move southward through Tunisia, and then turn eastward into Libya to apply pressure against Erwin Rommel, who was then in full retreat toward Tunisia before Montgomery's Eighth Army.⁵

In general, American forces were scheduled to remain in the rear. For example, Eisenhower positioned a small, northward-pointing force against the Spanish Morocco border to protect the Allied rear against a possible Axis invasion south through Spain and across the Mediterranean into Spanish Morocco. For the most part, he directed American energy to the construction of a secure logistical base in Casablanca and a resumption of training for the many inadequately prepared air and ground units assigned to Torch.⁶

It is useful to view the struggle for Tunisia as three distinct combat phases. The first was the initial race for control of Tunisia. Powerful, carefully maneuvering Germans, intent on holding Tunisia as a bridgehead, altered Allied expectations for an easy conquest. Eisenhower responded by forwarding as many troops as logistically possible, but it was a race won by the Axis, who had more adept, not necessarily more numerous, forces at the point of contact. On the Allied side, it was initially, and for the most part, a British-run campaign; the British officer, General Anderson, served as Eisenhower's field commander. Some American ground and air forces were drawn into the battle, but the British, with their long interest in North Africa and with Montgomery chasing Rommel to his apparent destruction, wanted to claim the prize which seemed well within their grasp, at least in November-December 1942. As events turned out, Anderson's forces, although reinforced with all possible speed, were stalemated in the mountains west of Tunis and Bizerte until April 1943.⁷

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Allied forces in Northwest Africa were not in a favorable military situation in early January 1943 when Carl A. Spaatz summoned Brig Gen Laurence S. Kuter, currently commander of the 1st Bombardment Wing of the Eighth Bomber Command in England, to Algiers to help coordinate air units widely separated and weakly connected by centralized command. Eisenhower saw his frontline ground forces getting beaten up and port facilities all along Algeria bombed regularly by an active enemy air force. Fearful that he had insufficient air capability to defeat the Axis air forces, he clamored to his superiors in London and Washington to expand the Allied air commitment, and he counseled Spaatz to improve coordination of his air resources that were, in fact, greater in number than the enemy's.

Spaatz and most other senior American airmen believed the problem to be more complex than one of just numbers and centralized command. Operations thus far clearly confirmed three important points about airpower: One, in modern war, unprepared forces cannot use the battlefield for operational training when facing an experienced enemy, as the Allies were doing in Northwest Africa; and two, the economy of force principle applies to aviation because it is a vulnerable combat commodity and is best used in measured fashion for important tasks. Three, neither ground nor air forces can operate effectively without air superiority. American airmen had been saying as much for years, but the point was especially effective coming from the British, who could authenticate their principles with battlefield successes.

The victorious British air leaders, Tedder and Coningham, pressured Eisenhower through November and December to institute operational modifications, the most important being a centralized, combined, Allied air command for the Mediterranean theater.⁸ In late December, Eisenhower agreed with Tedder to centralize Allied air forces, including centralized control of tactical aviation over the battlefield; but he asked for time to give American commanders, both air and ground, some additional experience to validate their own evolving tactical air doctrine. He had already shown the airmen that he would champion centralized air forces under his command (that idea had long been an option for him), and

it was behind Spaatz's summons to Kuter to help him coordinate Northwest Africa air resources.⁹

Eisenhower and Spaatz understood that American and British air operations proposed for North Africa in 1943 were almost entirely tactical, organized to support the dominant military concern of the Mediterranean; that is, the ground campaigns. They most certainly recognized that command and control constituted the most vital factor in defining the limits and capabilities of tactical aviation. Anytime different kinds of forces combined, whether it be archers with armored knights, artillery with infantry, cavalry with foot soldiers, or armor and infantry with aircraft, control was a problem and an issue.

Eisenhower and Spaatz recognized several basic variables that influenced effective command of their forces, including geography and distance, the incomplete training of their own forces compared to the training given the enemy, the factors of interservice and Allied competition, personality traits, and the control system itself. As one student noted, "beyond raw capabilities, the most fundamental requirement . . . is an effective control process."¹⁰ When faced with a powerful enemy, the advantage of coordinating one's available strength better than the enemy can be decisive. Such coordination requires effective commanders and adequate communications systems to integrate the operators with gathered intelligence. Air leaders had long argued that only an accomplished airman could execute the very specialized function of air command. It was beyond the experience of most ground force commanders.

Cunningham made a point to emphasize all the above factors, but he gave special acknowledgment to the influence of personality as a key factor in centralized air command. Effective command was based on a principle of "mutual respect for each other's capabilities and limitations."¹¹ Spaatz recognized that the personality factor underlay the effectiveness of Montgomery and Cunningham, and he passed on to Arnold his belief that "proper coordination of air effort with ground effort depends to a large extent on the personalities of the commanders."¹² It helped when old friends were on either end of a command line, particularly at the top level where decisions were made, often with insufficient feedback from the battlefield.

Wanting independent American forces engaged in battle despite all the problems associated with their use, Eisenhower started a second phase of the battle for Tunisia in early January. He decided that the small force of Americans then holding a quiet section of the battlefield on Anderson's southern flank should be expanded in order to continue the threat against Rommel's rear. The new American field force, commanded by II Corps commander, Maj Gen Lloyd Fredendall, with supporting American and French air units, was just getting into position when it too was threatened by a larger and experienced Axis force.

In mid-February, while frantically building their forces, Americans got caught between Gen Jüergen von Arnim, who had moved a large force from the north, and Rommel, who had taken up a position in southern Tunisia more quickly than expected. This period centered on the famous Battle of Kasserine Pass, where American ground units were defeated and pushed backward for several days before they were able, with British help, to stop the Axis attack. The air forces played only a minor part because bad weather kept most planes grounded. This second phase was seen as a clear defeat for the Americans. Important, however, is the fact that this embarrassing episode opened many of their minds to doctrinal revision.¹³

The third phase dated from late February, with Montgomery's victorious forces pushing up behind Rommel in southern Tunisia; it ended in May 1943 with an Allied victory. The conceptual mother of this final combat phase in Tunisia was the Casablanca Conference in January. Allied leaders there agreed to a common focus, with creation of a dramatic grand organization having a shared Allied command framework that would serve as a model for the rest of the war in Europe. Eisenhower had agreed to the new organization in January, but he delayed its implementation. With American forces stalemated and Montgomery's army closing up, he could no longer delay combining his American forces with those of the British. He relinquished direct control of ground, air, and sea forces to British command. The Americans also compromised when they accepted the plan to invade Sicily and Italy in mid-1943, thus continuing their involvement in

the Mediterranean campaign rather than turning to an invasion of northwest Europe, which was their original aspiration.¹⁴

The Kasserine Pass debacle and Casablanca Conference precipitated support for some important American air ideas for conduct of the war in Europe. With respect to strategic bombing, airmen argued and won acceptance of a plan to run an independent segment of the "combined bomber offensive against northwest Europe." Important for tactical air matters, the airmen argued for central command of tactical air units wherever or whatever the campaign or battle; at least they won Eisenhower's support when he agreed that the new air doctrine "should function very much along principles previously in operation with 8th Army and Alexandria."¹⁵

Eisenhower's assertive executive, Brig Gen Walter Bedell Smith, as well as Spaatz, Doolittle, and Gen H. H. Arnold, participated in the conceptual debate. The individuals who garnered the greatest celebrity on the matter, however, were two airmen who spoke so urgently on the matter: the American, Kuter, and the New Zealander, Air Marshal Sir Arthur Coningham, known to his friends as "Mary."

Coningham and Kuter

Neither Coningham nor Kuter gained, at least in American eyes, the grand celebrity status granted to their colleagues in Africa—Eisenhower, Tedder, Montgomery, Patton, and Doolittle, to name the most obvious. However, working behind the scenes, refining doctrinal bulkheads, and putting words in the mouths of their service chiefs, Coningham and Kuter benefited American and British air organizations. Their efforts helped establish doctrine that supported more efficient, effective, and expert air force control over tactical air resources, an arrangement that eventuated in a less abusive treatment of air units working with surface forces.

Even before he gained a great reputation as innovative commander of Allied tactical air forces in the Tunisian campaign, Coningham had acquired deserved recognition and glory in victorious operations of the Western Desert Air Forces before and during the successful pursuit of Rommel. No

matter how his victory was analyzed or deflated—that the Germans lacked a significant air force, or that the Italians had a large air force but did not know how to operate it, or that Coningham had the help of a sizable contingent of American air units—Coningham was a winner: he was the operational leader of the air contingent in a successful military campaign.

Operational policies and practices employed by Coningham in the Western Desert in 1941 and 1942, before the Tunisian campaign, became the model for tactical practices in Europe and much influenced modern American tactical aviation. The republication of Vincent Orange's *Coningham: A Biography of Air Marshal Sir Arthur Coningham* makes available the most comprehensive account of Coningham's command. Nothing was more important than command location. When he went forward to command air operations in 1941, Coningham, on the advice of Tedder, solicited the army commander to share a common, centralized operational command post. Successful in that entreaty, Coningham was able, through careful and patient nurturing, to develop intimate relations with the ground commanders. In his mind, those close relations increased the effectiveness of air and ground operations.¹⁶

Coningham gave great credit to that arrangement, but he claimed on occasion that he had to fight for operational practices different from those favored by Montgomery and his subordinate staff officers and corps commanders. In addition, as with the American air-ground relationship, and no matter that the RAF was a separate service, British ground commanders occasionally believed they could run the air force more efficiently than their airmen could. Coningham was in the desert in September 1941 when Churchill intervened in an argument about fighters flying combat patrols over the army positions as desired and requested by infantry leaders. Churchill came down on the side of the airmen, stating categorically that "the ground forces must not expect 'as a matter of course' to be protected against aerial attack." Coningham also insisted that the air component commander in a ground campaign be coequal to the ground commander, one not serving the other. The ground commander would have need to identify some missions, but the airman would determine his own reaction to these taskings.¹⁷

Coningham included the exercise of good relations with ground commanders in a primer underscoring requirements for successful tactical aviation, and he spent considerable energy training his own subordinate units, providing them with the latest techniques to ensure that their efforts would be truly effective. For example, he activated a formal system of liaison office exchanges between the services, a practice not carefully administered by air commanders who preceded him. He identified the need for dedicated transportation, especially trucks for his mobile support forces, as well as air crews. Army transportation personnel had on occasion assigned a low priority to servicing the airmen, easily done in the heat of battle. Coningham also identified the basic need for effective communications facilities and radar to help direct and conserve air resources in defensive and offensive operations with a capable enemy. In a strong message to army generals, Coningham proclaimed that military forces were doomed to failure without these basic conditions.¹⁸

Coningham gave a particular twist to the problem of air superiority, one the Americans would later misinterpret but one in fact couched very much in the tradition of battlefield flexibility, a principle of special application to airpower. Appreciating the importance of supply in desert warfare, Coningham advocated that a high priority be given for bombing attacks against enemy airfields, ports, and shipping. In October, during the chase of Rommel, he made enemy interdiction targets the primary tasking. While he thought air superiority a basic mission and organized his forces to attain general dominance over enemy air before the ground combat began, he found occasions to relax air superiority missions and fill target folders with enemy shipping, ports, and other portions of the transportation system.¹⁹

Kuter, the epitome of a headquarters type with very limited operational experience, did not have much in common with Coningham. But he did have the good fortune to be in Northwest Africa and be appointed the American contingent's deputy commander to Coningham's Northwest African Tactical Air Force (NATAF). In that post, he would learn from the best and witness the first success of the American forces—those

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that joined battle with the British to win the struggle for Tunisia.

Kuter is a known figure to most airpower historians. He was one of the authors of AWPD-1 (1941), which gave the Army Air Forces the strategic air mission, a largely autonomous assignment that pointed toward service independence. He is commonly, but wrongly, credited with authorship of FM 100-20 (July 1943), the primary tactical air doctrinal statement issued by the War Department, a publication also associated with air independence. He has been described as "rakishly good-looking, resembling a thin John Gilbert, articulate, bright, ambitious and much favored by Marshall." He also is generally identified in World War II as a "personal staff planner for Hap Arnold." How did he get there?

Kuter graduated from the Military Academy in 1927, showing no special interest in aviation. He joined the Field Artillery and, because of his class position at the academy, won an assignment to the prime facility, the Presidio in San Francisco. At an artillery exercise where he took his battery out to shoot up the landscape, he received such poor information from spotting aircraft that he asked to go to flight school to improve spotting, thus making him a better artilleryman. Flying took his breath away, and he soon found himself following the normal Air Corps pilot training schedule. In 1930, after getting his wings and receiving special training as a bombardment pilot, he transferred from Field Artillery into the Air Corps.

In 1933 he became operations officer for the 2d Bomb Wing at Langley. He flew as an alternate with Claire Chennault's acrobatic group; led the operational development of the B-9, the Air Corps' first taste of strategic bombers; helped run the airmail service and was detained to write the history of the debacle; won top honors at the Air Corps Tactical School in 1935 and stayed on to instruct; and, in July 1939, found himself directed to Washington. Just a young captain, he was marked by Marshall, who had a habit of bringing bright young men into the General Staff. Kuter was loaned to Arnold in mid-1941 to join those writing the Victory Air Plan (known also as AWPD-1). Promoted to major, he went back to Marshall as assistant secretary of the War Department

General Staff. He was one of three to write the 1941 reorganization plan for the War Department that brought about the Army Air Forces and Arnold's control over all elements of Army air. As a reward for his efforts, he received the rank of lieutenant colonel in January 1942. He became a brigadier general in February 1942—at 37 years of age. This was the sort of thing that happened in World War II.

Kuter went back to Arnold to become deputy chief of the Air Staff. Then Arnold said it was time for a little operational experience and, in October 1942, Kuter was given command (with no previous command experience) of the 1st Bombardment Wing, Eighth Bomber Command, in England. For three months, he directed B-17 attacks against the continent. In January troubles in the Torch campaign got everyone's attention and, as one of the bright young generals overseas, Kuter was picked for another important post of destiny: Eisenhower appointed him commanding general of Allied Tactical Air Forces, a temporary position contrived to help coordinate the widespread air forces then fighting a losing battle against the Axis.

Beginning mid-February 1943, in the third phase of the struggle for Tunisia, Kuter served as the deputy commander of NATAF, at the side of the zealous advocate of airpower, Coningham, who was fresh from victory over Rommel's air forces. The final battles took but a few bloody weeks and provided insight for all branches and services of the Army. In light of the tactical air command's structure and practices, Kuter found ample justification to reopen the historical argument in the War Department about the equality of air and ground command. No matter that the battle was not finished in Tunisia, in April both Marshall and Arnold asked that Kuter be sent back to Washington to help with war planning. Before the end of April, Kuter returned to serve as Arnold's special assistant. He then took over the important Air Staff doctrine office as assistant chief of the Air Staff for plans and combat operations.²⁰

Soon after Kuter arrived in Washington, he presented a long statement of lessons learned. Describing and discussing the many variables that made for a successful air campaign, he focused on centralized air command in the theater, so

important in facilitating the employment of coastal, strategic, and tactical air forces, mixing the forces and tasks as necessary to fulfill the long-range objective as well as current conditions. He expressed the importance of cooperation and cooperative attitude between air and ground commands, stating clearly that the task of the tactical air force was "intimately concerned with the battle itself immediately in the battlefield."²¹

Kuter took advantage of Coningham's celebrity, giving the air marshal credit for ideas favorable to the Army Air Forces (AAF). In a press statement, Kuter claimed that Coningham believed in "two distinct phases. First, the requirement that he reduce the enemy air to practical impotence and after that to throw the full weight of his air force against the enemy army." Kuter analyzed the battle for Mareth, the strongest defensive position held by Rommel in southern Tunisia, as a case in point: "The Mareth battle actually began with an air blitz on enemy airdromes. . . . Coningham concentrated his entire air force on the enemy airdromes." With the German air force materially reduced, Coningham then used the American and northern British air forces exclusively against the German air, permitting full attention of the Western Desert air units to provide close air support for Montgomery's Eighth Army. After Mareth was taken, Coningham reorganized the force structure to fit new requirements for the next phase against the Axis position. Kuter believed that "to win this battle, the key note in our employment of our Air Forces was the word 'concentration'."²²

Kuter's press statement was necessarily moderate and qualified. A few days after his public Pentagon presentation, he gave a classified interview to Air Staff planners that was much more biting and finger-pointing, although he apologized for its tone, which he considered necessary to show mistakes and operational problems. Kuter made it clear that Coningham was not perfect and that the British, as well as the Americans, made mistakes.

The official histories of World War II, as well as subsequent derivative histories, record the muckraking sentiment that Kuter expressed in this meeting, but they often exclude the qualifiers with which he expressed his critique. Historians

have discussed Kuter's list of sins committed by ground commanders, from Eisenhower on down (although no names were listed), who gave what airmen considered to be bad command directives to the supporting air forces operating in Tunisia. Airmen, operating against their sense of correct practice, obeyed orders from subordinate army commanders who demanded air support missions over small fronts, other commanders who demanded expensive air caps, and yet others who ordered missions for obsolete bombers that were predictably shot down. The list went on, but the sentence was clear. To Kuter, certain air-ground practices explained why air support had failed in the opening months in Tunisia and why they needed to be corrected in the future. At least from the perspective of 50 years later, Kuter's critique suggests a need for fine-tuning tactical air policies and practices, not a major overhaul of them.²³

Significant to ideas developing elsewhere, Kuter included a short comment about the NATAF prime mandate. "Its directive initially, and throughout the campaign as a matter of fact, listed as its functions: First, the defeat of the German Air Force; second, the isolation of the German army; third, the redirection of all striking effort against the German Army in direct support of the ground push forward." This reference to priority is odd, given the fact that NATAF official documents, including Coningham's official directive, do not deal with three equal-level priorities. Rather, they stress, as number one, "to provide maximum air support for land operations," and, as two, the attainment of which "can only be achieved by fighting for and obtaining a high measure of air supremacy." Other air organizations in North Africa, the Coastal and Strategic Air Forces in particular, specialized more than NATAF in interdiction roles. Very likely sensitized by ideas working in Washington, Kuter threw in the priority concept. It is not coincidence that three days after this interview, Kuter was assigned to help rewrite newly developed doctrinal statements.²⁴

The damning list of bad command decisions Kuter brought back from Africa would not have had as much effect had they not come with an endorsement from a proven winner, Coningham. For a time, Coningham helped shine a light on American tactical airmen and Kuter, the disciple/advocate,

helped clinch the selling of the British message to the US Army. When Kuter argued the case on his return in mid-May, he found the soil already prepared. Marshall and his senior staff had already heard similar stories that corroborated Kuter's message, and they had been hounded by the Air Staff for months on the necessity to rewrite some official tactical air doctrinal.

Kuter gained even greater recognition when he and other air force advocates of independence in Washington proclaimed that combat in North Africa had shown the need to give air support commanders independence from the ground commanders for whom they were providing support, and that official doctrine needed to be changed to reflect combat conditions. It is an old battle that went back to the 1920s in the United States. It is my contention that these independence advocates have been glorified without the acknowledgment due other important players, without the recognition of personal agendas, and most importantly, without the true evaluation of conditions in Tunisia. I think that, partly through self-promotion and with the aid of Air Force historians writing in the early 1950s, Kuter has gained undeserved credit, particularly for the authorship of official doctrine. On the other hand, he had an important role in merchandising the radically new conceptual model for tactical aviation. The story can be best told from the perspective of events generated in the United States rather than in Africa.

Doctrine from Headquarters

In the winter of 1942-43, the War Department put some effort toward modernizing air doctrine, particularly as espoused in FM 1-5, *Employment of Aviation of the Army*, and FM 31-35, *Aviation in Support of Ground Forces*. Air planners had an interest in strengthening the independence of the air commanders in war plans, but the joint deliberations necessary for the review process upset spokesmen for ground forces. FM 1-5 has a strange history. The War Department is said to have published it in January 1943 (at least there was a rumor to that effect), but copies are difficult to find. The manual appears, for reasons unknown, not to have been

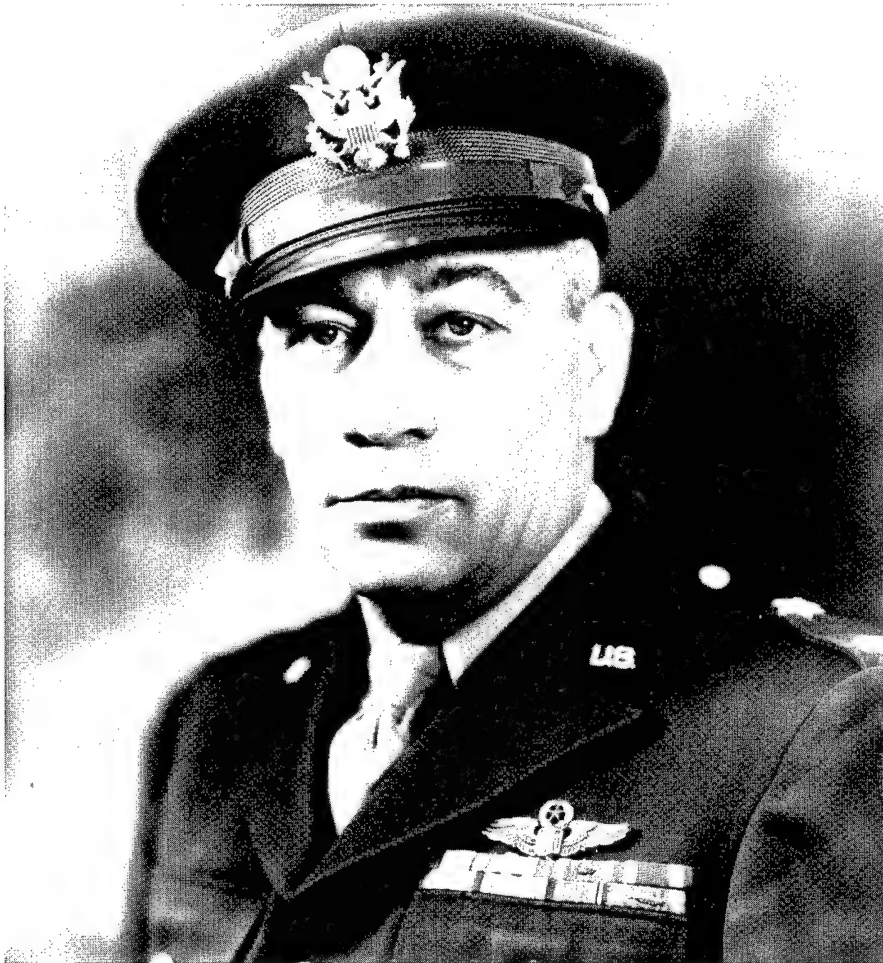
distributed widely, if at all. It gave something to both sides—a compromise document when the mood was decidedly not concessive. It recognized the central command by airmen of theater aviation, but it also assured allocation of aircraft to the land battle at crucial times.²⁵

In December 1942 discussions between planners in the Army Air Forces and Army Ground Forces (AGF) serving on an air support board became locked over control of specialized air support aircraft. The airmen wanted a rule to allow them to centralize control over all air support command resources; the AGF wanted aircraft delegated to subordinate commands according to the ground commanders' wishes. The existing edition of FM 31-35, written the year before, equivocated on the issue of centralized command. With its mixed-service representation, the board was not susceptible to radically changed ideas for formal doctrinal statements. In January, not wanting to force the issue and somewhat unsure of doctrine based on British experience in the Western Desert, Marshall postponed alterations of FM 31-35 until the Americans could gain combat experience.²⁶

Brig Gen Orvil A. Anderson, assistant chief of the Air Staff for operation plans, who had a dramatic sense about expanding the influence of air commanders, ordered staff officers specializing in air support to investigate the issue. He saw a battle rising with the ground forces promoters, and he began an aggressive offense. He urged the assistant commandant, Col Morton H. McKinnon, director of the Air Support Branch at the Army Air Forces School of Applied Tactics (AAFSAT) in Orlando, Florida, who was just beginning to get involved in doctrinal study, to pay greater attention to statements about centralizing air authority for operations.²⁷

Anderson did not accept one report that commented on FM 31-35 because he thought it overly compromised air leaders' command prerogatives. He believed that "full tactical command of air support units is vested in an Air Support Commander, responsible only to the task force or theater commander." He even offered a radical idea about the air support commander not answering to the ground field commanders—rather "advis[ing] them on all matters pertaining to air support." Air planners began to rethink some

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Maj Gen Orvil A. Anderson

General Anderson helped push the new tactical doctrine through the Pentagon. (Source: National Air and Space Museum)

of the early policies. For example, they thought that the practice of the air support commander responding to requests from subordinate commanders through complicated channels of command would result in piecemeal destruction of air resources. For the first time, the air staff began explicit promotion of the British ideas of full equality in services, even for tactical or "cooperation" air units, as the British called them, although at first the rhetoric was not so obviously British.²⁸

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Capt Morton H. McKinnon

**Shown here as a captain, Col Morton H. McKinnon was the primary author of FM 100-20.
(Source: National Air and Space Museum)**

Anderson was revolutionary in arguing that when aviation units are designated to support a ground force, control of the air units comes down through the theater commander to the air force commander, what we call the air component commander (ACC) today. Doolittle was the air component commander in Africa at the time. The ACC, in turn, gives assignments to the designated air support commanders who then assign the attack missions as befits the ground plan.

Even more radical, Anderson suggested that in cases where isolation prevents effective control of smaller air units by the designated air support commander, the highest unit air commander will control air resources—not the ground commander, as was originally stated in FM 31-35.

As Anderson boldly stated, "Throughout all phases of allocation of Air Support Units the principle must be recognized that command is exercised through commanders in control of units operating in similar media." Just because air units are designated to close support of a subordinate ground unit did not imply subordination of the air unit to the ground commander. Anderson expected the air support commanders to consult with ground commanders regarding the best employment of available air resources, but "final decision as to its employment should rest with the Air Force or Air Support Commanders who are especially qualified and more favorably situated in the chain of command to exploit its capabilities and minimize its limitations."²⁹

One might expect that, for all his energy in attempting to modify a touchy and important part of FM 31-35, Anderson's efforts would fail to persuade the AGF. Ground leaders had not been exposed to this kind of daring pronouncement about air equality at the formal level. British declarations about centralized air made the American airmen bold. Ground leaders certainly had heard airmen make such claims in social situations; it was part of interservice rivalry. Most air and ground officers knew it ran hard against the grain of the stereotypical field commander who believed that all military forces were potential support resources, his for the taking. Many holding this view put air support into the category of *accompanying weapon*, not *independent force*. In a normal situation, ground commanders would willingly allocate air units to many ground units, further decentralizing control to units even smaller than a division.

Consider the changed tendency of War Department ground officers after Marshall began giving greater influence to the air force leadership. If the attitude toward modifying FM 31-35 and the disappearance of FM 1-5 are indicators, interservice toleration seemed to have waned by early 1943. One sign of this was the vocal contingent of staff ground officers who

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refused to accept revisions to FM 31-35 restricting ground command influence over air support resources. This viewpoint was strengthened as knowledge about the effectiveness of the German system of combined air and ground strike forces in the Battle of France came to light. The stiffening view of Washington ground planners gave little latitude to airmen who wanted to centralize control of tactical air assets. Nevertheless, the issue was served, and the real question became one of testing the persuasive power of airmen in Washington to get the changes past Marshall and the General Staff, not to mention Maj Gen Leslie J. McNair, commander of the AGF and chief advocate of the ground point of view.³⁰

The dramatic theater reorganization, initiated at Casablanca on 18 February 1943, that coalesced American and British command structures and formally sanctioned equality



Gen George C. Marshall and Lt Gen H. H. Arnold

The famous Casablanca Conference decided certain strategic and tactical doctrinal matters. Here, Generals Marshall and Arnold share a lighter moment. (Source: National Air and Space Museum)

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between air and ground gave airmen in Washington fuel for change. The word got to Washington from any number of sources: the press, American air and ground commanders who had experienced the promotion of coequality by Montgomery and Coningham at the commanders' conference in Tripoli on 16 February, and British airmen who came to the United States to pass on British tactical aviation lessons. Still, new attempts by the airmen to incorporate command and control changes into tactical air doctrine by modifying FM 31-35 were unsuccessful. Anderson wrote again to AAFSAT asking for greater effort and, subsequently, to Col W. H. Hardy, head of air force instruction at the Command and General Staff School, Leavenworth, Kansas, requesting his help.³¹

The shocking American defeat at Kasserine in the last weeks in February rekindled the issue, compelling Washington staff members to become more receptive to the



Air Chief Marshal Sir Arthur Tedder and Maj Gen Carl Spaatz

The new order after Casablanca included Chief Air Marshal Tedder as commander in chief of Mediterranean Air Command and General Spaatz as commander of Northwest Africa Air Forces. (Source: US Air Force)

idea of reformation. From Africa, Spaatz forwarded his views regarding Coningham's success and his plans to alter doctrine and the application of air support for ground troops. First, Spaatz sent Arnold a short note and a copy of Montgomery's "Some Notes on High Command in War." Montgomery had gathered his personal notes, some say borrowed from Coningham, to explain his success in the Western Desert; he highlighted a number of technical points, including the need for flexibility, mass, and centralized command of tactical air resources.³²

A few weeks later, Spaatz sent Arnold a long report on command conditions in Africa. Spaatz clearly was not beguiled by Coningham's description of how to organize and run an independent tactical air force, although he acknowledged problems with American air support forces, particularly with the fact that Allied air forces at the time were not an adequate match for the German air force. On the other hand, Spaatz did not believe that the situation "requires a peculiar form of organization." He spoke rather to the need for air superiority, centralized forces, and large formations (not the small, vulnerable flights being sent out at the time) as well as the need for other technical changes in operational methods. What of the revolutionary priority system for assigning missions and the coequality of air and ground commands as advocated by Coningham? Spaatz had no commentary on coequality in his letter to Arnold; he seemed not to be as captivated as he once was by the idea of independence. It was a Washington issue that was not appropriate for the field. Neither did Spaatz comment on the priority issue; he would have been opposed. Since his 1941 tour in England, he had recognized the value of centralized air command so forces could be applied with the greatest flexibility. The object was to help the ground, and flexibility was a primary principle of air employment.³³

On another command issue, Spaatz was at one with Coningham; he insisted that the emphasis was on personality: "The proper coordination of air effort with ground effort depends to large extent on the personalities of the commanders." Effective command was based on a principle of "mutual respect for each other's capabilities and limitations."

Spaatz did not feel the need for structural changes to enforce effective air-ground coordination in combat. Independence was not necessary for mutual support and, further, Spaatz equivocated with Arnold on whether respect could be acquired "under a separate Air Force or with an Air Force under the Army."³⁴

General Anderson would have been surprised when he read Spaatz's letter to Arnold. The senior staff habitually circulated important field correspondence, especially a letter so clearly informative and oriented to leading issues. Anderson obviously found Coningham's principles of outspoken advocacy more useful to Washington than Spaatz found them applicable in the theater. But, while Spaatz never became an advocate of Coningham's ideas, he did not undermine them either. He made a point of reminding Arnold that Kuter, who was with him in Africa at the time, was the man to explain Coningham's tactical aviation ideas to Washington. Spaatz was correct when he told Arnold that Kuter's extended experience in Africa would ensure that "his service for you will be of a sufficiently greater value."³⁵

While conversations regarding publication of revised tactical air doctrine simmered in Washington through March and April, and the fountainhead of combat experience involved Kuter's and Coningham's commanding the tactical war at their mountain crossroads command center at Ain Beida in central Algeria, the agency for doctrinal change was the Air Support Department at AAFSAT in far-off Orlando and the primary agent for it was Colonel McKinnon. Some looked at AAFSAT as a reproduction of the Air Corps Tactical School, and the record reveals that the faculty lived up to its charge that it be a doctrinal pace setter, at least with regard to tactical aviation.

An early example of AAFSAT's importance in the tactical doctrinal role came in the first days of March. The Air Staff in Washington asked McKinnon to draft a chapter for a new, revolutionary manual conceived by Arnold to cover all manner of operational doctrine and to be published as a series of pamphlets that, in loose-leaf form, could be constantly updated to match rapidly changing battlefield experience. McKinnon wrote "The Air Support Command." His chapter

was included with others in the unnumbered publication, *The Air Force in Theaters of Operations: Organization and Functions*, issued in May 1943.

In terms of tactical aviation, the manual and the section drafted by AAFSAT were quite conventional in adopting many of the ideas expressed in FM 31-35. Cautiously, McKinnon even reproduced, right out of FM 31-35, the concept about ground commanders having control of air resources in certain circumstances, such as when communication or distance prevented centralized air control. It was an idea currently under heavy attack in North African combat circles, and in Washington as well. The air support pamphlet even continued using the term "air support" to describe air activities interwoven with ground combat. The British in Africa had already made a big issue of using the term "tactical" in place of "air support," which they thought denoted subservience to the ground commanders.³⁶

Nonetheless, *The Air Force in Theaters of Operations* was a significant transitional document that bridged ideas between FM 31-35 and FM 100-20, the latter to appear in July 1943. It was the first published document, American or British, to articulate the three phases of tactical operations. McKinnon described phase I as neutralization of enemy aircraft and airdrome installation, phase II as isolation of the battlefield, and phase III as close support of ground forces.³⁷ The original three-phase aviation priority tasking is listed below.

Phase 1: Neutralization of Enemy Aircraft and Airdrome Installations

- Attacking airdromes
- Destruction of airplanes on the ground
- Destruction of supplies and installations
- Destruction of radio installations
- Attacks on enemy antiaircraft installations
- Coordinated attacks on heavily defended installations

Phase 2: Isolation of the Battlefield

- Attacking shipping and naval targets
- Attacking railroads and rolling stock
- Attacking fuel, ammunition, and supply dumps
- Attacking reserves and reinforcements in concentration

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Phase 3: Close Support of Ground Forces

- Attacks against enemy defenses
- Attacks against landing parties
- Attacks against enemy personnel, weapons, and vehicles
- Destruction of roads and bridges in enemy's line of march
- Denial of ground by use of chemicals
- Screening of action by use of smoke
- Neutralization of enemy air force

Great creative thinking and prototype modeling continued in Orlando, with fresh ideas coming from Africa and Washington. In late March Coningham sent two RAF wing commanders to Orlando to share with AAFSAT students and Air Support Department staff their experiences with the Western Desert Air Force. More important, as events would prove, Kuter's observations on operations in North Africa reached the school in early April. They arrived indirectly. From his command post in Algeria, Kuter sent some material to his mentor, Maj Gen Muir S. Fairchild, in Washington. Following the preference to involve AAFSAT in policy and doctrine, Fairchild forwarded the material to McKinnon at Orlando.

Subsequently, Kuter's description of coequality of air command became the other most recognizable facet of an innovative new tactical doctrine, matching the three-layered priority concept already articulated by McKinnon at Orlando. Kuter insisted that the unsatisfactory organization of air support forces could be corrected by emulating the new tactical air force organization then in place in Africa. He briefly defined it (with the RAF clearly serving as the model), and he offered some specific technical problems with American air support practices. He encouraged the emphasis of one primary principle, the importance of air superiority before undertaking ground missions. That was Coningham's principle too. It was "the first job of a 'ground support' air force." At this point Kuter did not, as would later be credited to him, insist on mission priorities beyond air superiority for tactical planning; he did not advocate establishing the priorities of air superiority, interdiction, and close air support.

More than likely, he was unaware of McKinnon's concept and the Air Staff's acceptance of it. Kuter also listed a few minor issues that were theater specific or of little importance to McKinnon's instructional institution, so far away.³⁸

If he did not offer priorities, Kuter offered something far more important and which promised a long-term effect. He advanced the argument that American tactical air forces should have either a new level of air independence or equality similar to that enjoyed by the British, or else that they be allowed simply to behave as though they had. Kuter was the natural advocate for this position because shortly before he came to Europe he had been among the ringleaders pushing for immediate separation of the air forces from the Army. He had even drafted a proposal for such and asked Assistant Chief of Staff Stratemeyer to take it to Arnold and Assistant Secretary of War for Air Robert A. Lovett. When Lovett disapproved of any attempt for separation during the war, Kuter destroyed his draft proposal, but he did not give up his fixation to make air a separate service.³⁹

Kuter got great psychological support from both Marshall and Coningham. In early 1942 while he was working as an assistant secretary for Marshall and leading the effort to reorganize the War Department, he claimed that Marshall told him he wanted the Air Force as a separate organization, but "it was obvious that we could not operate without the support of the many varieties of talent and experience in the Army Service Forces." The knowledge that he had support from Marshall about air independence—in fact, if not by regulation—gave him great confidence. Kuter received similar support from Coningham as a mentor in air independence, and he began to believe, with good cause, that the British policy of air and ground equality underlay their combat success in Africa—that the air battle was equal to the ground battle.⁴⁰

In his letter to Fairchild, Kuter argued for independence in the field, in combat theaters. At the very least, airmen would command independent air forces in conjunction with each ground force in a theater. He insisted further that "the concept of an air ground battle where ground effort is given an equal weight with air effort can become an actuality only when

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The Honorable Robert A. Lovett

Assistant Secretary of War for Air Lovett dissuaded air leaders from pursuing independence during the war. (Source: National Air and Space Museum)

neither the ground commander [n]or the air commander are subordinate to the other." Kuter saw both ground and air playing a "mutually supporting role," a major shift from traditional ground command roles, where air support is conceived to be an auxiliary.⁴¹

At AAFSAT, the Air Support Department's conceptualization of air support was greatly affected by Kuter's argument and by a departmental review of RAF tactical aviation. The staff had

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Brig Gen Muir S. Fairchild

**General Fairchild helped the Air Staff promote a more independent tactical air force.
(Source: US Air Force)**

the enviable opportunity to debate issues, test ideas on students, and write on the subject. In effect, it served the purpose of testing and then promoting new tactical air thinking in a specific direction before the African experiences could be spread and absorbed by others in military organizations. Staff members were in a perfect place to blend Kuter's commentaries on command equality with their unique ideas on mission priorities. They could test their ideas on

students, faculty, and friends, and could even issue concepts to the field or operational organizations before the slower pace of publication and distribution of official doctrinal manuals took over. It was not long before Washington agreed that AAFSAT could help steer new doctrine through the Army.⁴²

In mid-April, Army Chief of Staff Marshall again got caught up in the discussions about revising air support doctrine to correct deficient training literature. Lovett sent Marshall a memo on 18 April, detailing current confusion about air support employment. Citing and appending Montgomery's December 1942 Tripoli notes, "High Command in War," Lovett suggested that Montgomery confirmed "the fundamental principles on which the reorganization of the Army Air Forces in June of 1941 was ordered by you with the approval and support of the Secretary of War." Ignoring the traditional split between air and ground over centralized command, Lovett also told Marshall that much of what Montgomery stated was "accepted by the Army in principle" but had not been "embodied in our written doctrine." Regardless of the War Department division over air support, the opportunity to champion the air doctrine concept came from the top down, supported by Lovett, the civilian air leader, and by Marshall, the military leader.⁴³

On 24 April 1943, a few days after the Lovett memo, Marshall delegated Assistant Chief of Staff, Organization and Training Division (G-3), Maj Gen Ray E. Porter to investigate the matter. Prompt by military bureaucratic standards, other branches of the General Staff (G-3 and Operations Division [OPD] included) and Maj Gen Jacob L. Devers, commander of armored forces in Fort Knox, Kentucky, agreed by letter and memo that the British method should be taken into account in an air support doctrine manual. Marshall suggested in rewriting the new manual that the phrase "correct employment of air power" should be used. His letter of instruction gave particulars of what the new manual should say, including the Montgomery rhetoric, "Land power and air power are coequal and interdependent forces, neither is an auxiliary of the other." Marshall's letter of instruction, obviously written by an airman aware of operational ideas in Africa, also reiterated the importance of gaining air

superiority, air power's "inherent flexibility," and that "control of available air power must be centralized and command must be exercised through the air force commander." When Kuter arrived in mid-May, he expressed surprise with the G-3 and OPD acceptance of coequality for air forces in the field.⁴⁴

The sentiment for change was strong, but some of the machinations over the issue exposed embedded differences that would not die with the simple issuance of a new field manual. The Operations and Training Division of the General Staff, headed by an airman, led the way. Some of the Army staff apparently accepted the notion that, because of endemic differences between the AAF and AGF, the need was great for a new doctrine. The failure to agree on revision of FM 31-35 illustrated the problem. The airmen wanted the Montgomery procedures; many ground leaders wanted to relegate the air commander to the status of advisor or clear subordinate and to decentralize the control of air units to many ground units.⁴⁵

G-3 had a distinctly different perspective about the need to rewrite doctrine, agreeing that the Montgomery doctrine was correct and had, indeed, been proved in combat. In a 29 April 1943 memo, Maj Gen John Edwin Hull, acting chief of OPD and warmly regarded by the airmen, suggested that the Army had already condoned Montgomery's principles in a number of field service regulations and field manuals. He illustrated his point by citing portions of FM 100-15, *Field Service Regulations, Larger Units*; FM 100-5, *Field Service Regulations, Operations*; and the basic air support manual, FM 31-35. Rather than form a new manual, he suggested a need for air and ground leaders to get together and work at refining FM 31-35.⁴⁶

With his sense of open compromise, Hull then took exception to the attempt of the Air Staff to bypass the AGF in coordinating the new doctrine, although he remained a strong advocate of the need to refine tactical doctrine. One of Hull's subordinates, Col Samuel E. Anderson, deputy chief (air), strategy and policy group, argued against asking the AGF for concurrence in a revised doctrine. He felt it negated the very idea of coequality. While the air forces are vitally concerned with the success of the ground forces, the "Air Forces very properly do not try to influence ground force doctrine, tactics

and techniques, nor do the Air Forces want to command the Ground Forces or control them in any other way." Anderson also suggested that there existed "a strong group of officers at Army Ground Force Headquarters who do want to control and command at least a part of the Army Air Forces." He believed the issue to be an air force matter, and worked by air officers, but he had the political sense to ask that the OPD serve as the office of origination so the chief of staff will not be "looking for an ulterior motive; which he might look for if the paper originated in the Air Force."⁴⁷

This attempt to keep the AGF out of the loop was not as self-centered as it might appear. Throughout the war, the Army Air Forces operated integrally with War Department military planning activities, whereas the AGF staff at the National War College operated like a field command, giving detailed instructions to ground commanders in combat. Hull understood that the issue would raise objections from the AGF staff; he also understood McNair's argument. He believed that McNair had a paramount interest in air-ground support and should have equal input into the issue. Hull supported McNair, a man with great "knowledge of tactics in grand strategy," and agreed that McNair should be involved in the issue. Hull suggested finally that it was doubtful there would be unanimity in Washington, but "it is our responsibility here in the War Department, and particularly in OPD, to arrive at a solution which appears best to us after full consideration of every angle."⁴⁸

A week later, Lt Gen Ben Lear, sitting in for McNair, wrote a scathing memo objecting to a radical revision of air support doctrine. He expressed fear that the ground forces would be even more ignored if the air forces were given too much independence, especially if they claimed a top priority for air superiority missions.⁴⁹

Ultimately, Hull did not allow his division to accept responsibility for writing air doctrinal revisions; the doctrinal writing went forward with a clear air force bias. G-3, Organization and Training Division, accepted the task to produce a new document. Having a small staff after the March 1942 reorganization, which saw the move of much of its personnel to the OPD, and wishing to avoid some of the

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Brig Gen Samuel E. Anderson

When a colonel, General Anderson took credit for the use of bold, capitol-letter print in FM 100-20. (Source: National Air and Space Museum)

Washington bickering. G-3 Porter, an Army officer with combat experience in North Africa, passed the ball to those at Orlando. Apparently, G-3 could give orders directly to an Army Air Forces school.

Porter commissioned the assistant commandant of the Air Support Department at AAFSAT "to set forth in a single War Department publication the accepted doctrine concerning the command and employment of air power" as learned from the

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Lt Gen Joseph T. McNarney

As deputy to General Marshall, and as acting chief of staff, US Army, General McNarney helped get FM 100-20 through the Pentagon. (Source: National Air and Space Museum)

Tunisian campaign. Apparently, AAFSAT was susceptible to getting orders from different quarters, and, with one important exception, this task from Porter matched the Kuter instructions sent a month earlier via Fairchild.⁵⁰ Even in his end of tour interview on 22 May, Kuter did not express the need for a priority system, except in one instance where he claimed that Coningham had a two-phase procedure: "First, the requirement that he reduce the enemy air to practical

impotence and after that to throw the full weight of his air force against the enemy army."⁵¹

Familiar with the new, important coequality issue and having very clear instructions, Colonel McKinnon quickly wrote a draft version of what was a very abbreviated manual, one that boldly affirmed a faith in tactical aviation rather than one that provided itemized instructions. As with all institutional products, individuals in Washington modified the final text. Several claimed to be authors, or at least critics, in its origination. (Colonel Anderson claimed responsibility for the bold printing.) On 28 May, Barney Giles, assistant chief of staff of the Army Air Forces, directed Kuter to work on the new doctrinal manual. Three days later, Gen Joseph McNarney, an airman and acting chief of staff, ordered G-3 Porter to revise the training literature to reflect new thinking about air support. McNarney's letter described the major elements of FM 100-20 even before it was published. McNarney's intention was to facilitate training publications right away.⁵²

Evidence of McNarney's success in facilitating the new doctrine came in early June when it appeared in Army ground school manuals. For example, by June 1943, a month before the official publication date of FM 100-20, the Infantry School at Fort Benning, Georgia, ran a lead article on new air-ground doctrine in its monthly journal, *The Mailing List*. The editors even went to the trouble of illustrating with pencil drawings the three phases of air support: air superiority, interdiction, and close air support.⁵³

While the concept was disseminated to the organizations that formulated training manuals, Kuter prepared the proposed manual (already referred to as FM 100-20) and had forwarded it into the War Department bureaucracy by mid-June. On 19 June General Porter gave his full approval and, acting as the facilitator in the General Staff, forwarded a copy to McNarney, currently acting as deputy chief of staff rather than as chief of staff in Marshall's place, as he had done two weeks earlier.⁵⁴

In the package to McNarney, G-3 included supporting arguments and endorsements affirming that the manual was "modern, brief, informative, and flexible." G-3 offered that it

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was carefully reviewed by a ground and an air general officer with combat experience in Africa and that it had been studied by General Porter (Infantry), Col Henry J. Matchett (Infantry), Colonel Argo (Field Artillery), Colonel Chamberlain (Coast Artillery, Antiaircraft), and General Stratemeyer, Maj Gen Barney M. Giles, Brig Gen John E. Saunders, and General Kuter (Air). Finally, it had the "enthusiastic approval of the director of Air Force instruction at the Command & General Staff School."⁵⁵

If Colonel Anderson is correct, Marshall tried to avoid dealing with the issue, but he was persuaded to take a copy of the document home one night. The next day, he grudgingly blessed it. On 24 June McNarney formally endorsed FM 100-20 for publication. After the key G-3 staff members had carefully assembled a press release, Porter signed a 30 June memorandum to the adjutant general to publish FM 100-20.⁵⁶

Field Manual 100-20, 21 July 1943, *Command and Employment of Air Power*, superseded and replaced Field Manual 1-5, *Army Air Forces Field Manual*. It was not written to replace FM 31-35, which dealt with tactical air operations and organizations exclusively: FM 31-35 remained in effect, except where contradicted by FM 100-20, and efforts to revise FM 31-35 continued. Pressure to speed the draft of FM 100-20 through the military departments precluded giving detailed description of the tactical processes included in FM 31-35. FM 100-20 is distinguished by its spare language. Much of the material is ordinary and unworthy of special attention.⁵⁷

Most of the first two pages are written in bold capital letters, intended to draw attention to the most important point: that the Army Air Forces are quite independent and that, along with their important strategic mission, they have a high-priority tactical mission that equates with and parallels the ground battle. The first paragraph imitated the Montgomery precept that "LAND POWER AND AIR POWER ARE CO-EQUAL AND INTERDEPENDENT FORCES; NEITHER IS AN AUXILIARY OF THE OTHER." The second paragraph identifies the main independent mission and briefly explains the importance of air superiority: "THE GAINING OF AIR SUPERIORITY IS THE FIRST REQUIREMENT FOR THE SUCCESS OF ANY MAJOR LAND OPERATION." The third

paragraph states the importance of flexibility in air applications and the importance of highly centralized command: "THROUGH THE AIR FORCE COMMANDER IF THIS INHERENT FLEXIBILITY AND ABILITY TO DELIVER A DECISIVE BLOW ARE TO BE FULLY EXPLOITED." The same paragraph continues with the caveat, still in all capital letters, that air forces may not be attached to subordinate ground forces unless "ISOLATED BY DISTANCE OR LACK OF COMMUNICATION." This was the same restriction to full central air control, stipulated in FM 31-35 and other manuals, that sensitive air advocates objected to, suggesting that FM 100-20 was not as extreme as popularly supposed.⁵⁸

The remaining 12 pages in this short manual describe rather mundane, ordinary facets of air forces missions, organization, and general operational practices. The McKinnon authorship and similarity with FM 1-5 are evident, suggesting further that the Washington manual writers wanted to soften the blow of the first two pages. For example, a section described as "military aviation" lists five types of tactical functions, from bombardment to troop carrier work. The next section, "organization," describes the traditional, long-accepted organizations: "flight, squadron, group, wing, division, command, and air force."⁵⁹

The final chapter describes in greater detail the four major specialties of the early war Army Air Forces. They include strategic air force, tactical air force, air defense command, and air service command. This chapter explains the reason for centralized air command and offers a reason or explanation for certain prescribed air force practices. For example, it describes why it is necessary to win the air battle before undertaking the ground battle, one of the serious conditions necessarily ignored in Northwest Africa. It explains how parcelling out air resources eliminates the flexibility needed to make air warfare effective. But the section on tactical aviation also discusses what quickly became the focus for ground enmity, the division of tactical efforts into priorities.⁶⁰

In relatively great detail, given the length of this manual, FM 100-20 describes the three phases of tactical operations with clear levels of priority. The first is "to gain the necessary degree of air superiority." The second is "to prevent the

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movement of hostile troops and supplies into the theater of operations or within the theater." The final priority is "to participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces." Although the authors use the qualifier, "necessary degree of superiority," the manual does not offer a suggestion that at certain times, emergency notwithstanding,



Lt James H. Doolittle

Shown here as a lieutenant, Doolittle was insistent on keeping his units under centralized command when he served as commander, Twelfth Air Force, in North Africa. (Source: National Air and Space Museum)

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Brig Gen Lauris Norstad

General Norstad, Doolittle's operations officer in North Africa, helped General Doolittle and General Vandenberg coordinate US air units during the buildup of US forces there. (Source: National Air and Space Museum)

these priorities would not hold fast. It is fully apparent that Washington advocates accepted the hard and fast rule of priority, even without having a historical example from the British or their own combat experience.⁶¹

Getting FM 100-20 through Washington politics in the early summer of 1943 was considered quite a coup by the airmen. Kuter even made special arrangements to get the new message

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Brig Gen Hoyt S. Vandenberg

General Vandenberg, Doolittle's deputy in the Twelfth Air Force, later served as chief of staff, US Air Force. (Source: National Air and Space Museum)

out to the public. He persuaded a *Saturday Evening Post* writer, Forrest Davis, to write a piece on Army Air Forces operations that would discuss the "coequal and coordinate" ideas in the upcoming FM 100-20. The Davis article, titled "How to Conquer the Continent" got late approval from General Arnold, who generally seems not to have been an active player in Pentagon transactions for the new manual. Remembering Eisenhower's prohibition of top-level headquarters' officers

getting personal coverage in the press, Kuter was somewhat embarrassed when the article featured him.⁶²

The very procedure that got FM 100-20 through the War Department, as well as the content of the document itself, had an immediate and, more important, a long-term effect on relations between ground and air. While the representation of ardent air officers and agreeable ground representatives on the War Department General Staff pushed the publication into the light of day, officers in the Army Ground Force Headquarters, National War College, located just across the river from the Pentagon, were quite naturally upset by not being included in the official review of this new air doctrine which affected them so very much. Ground advocates would be expected to pass their opinions, some with displeasure, to commanders overseas. They would find a ready audience; few commanders, all arguments notwithstanding, believed that all air support should be centralized. Washington proponents had a rougher job convincing combat commanders, both air and ground. In the following months, even Arnold got anxious about distribution of the manual. Kuter claimed it was a miracle that the doctrine was published by the War Department. It was a miracle that represented the coming together of a number of factors, including personalities and tenuous conditions that would not exist in Washington at other times, and which would definitely not transfer easily to combat theaters.⁶³

Postscript

In June, just as McNarney sent FM 100-20 to be published, Kuter wrote to his old boss, Coningham, apprising him of the revolution in Washington and preparing him for surprise when he saw the new air doctrine. Kuter couched his comments in the context of interservice rivalry in general and the air-ground primacy debate in particular. He visualized the creation of FM 100-20 as a distinct victory over opponents to airpower: "More people were defeated in Tunisia than Germans and Italians." He told Coningham that the document offered air commanders the means to increase their influence

with the ground leaders. Coningham would have been pleased that Americans affirmed centralized air command and coequality. At the very least, it meant increased influence with Montgomery and other British and American ground generals he had worked with.⁶⁴

Parts of FM 100-20 would have truly surprised Coningham; one important component of the document did not match his own doctrinal view. Even a brief examination of Coningham's operational history would show that he did not define his tactical operations concepts as a formal set of mission priorities. While he advocated the primacy of air superiority, he also thought important the other basic airpower principle of flexibility in combat operations. Coningham would see that the three-level priority system expressed in FM 100-20 did not equivocate, and his combat-experienced air commanders would blanch at that kind of structuring regulation. American air commanders in Africa would have also raised their eyebrows.⁶⁵

Kuter knew that; he remarked in his June letter to Coningham that Spaatz would be "amazed" at the new doctrine and the way it was presented. While it is true Spaatz was an active advocate for an independent bombing campaign in Europe, there is no evidence he championed FM 100-20 to Eisenhower or to North African theater headquarters. Indeed, Spaatz had a reputation for cooperating with his military colleagues and operating with much independence because he had developed a sense of trust with his superiors. The air battle in Africa was tactical. The point was to work with and help the Army.⁶⁶

FM 100-20 does address correlation between headquarters and the field. In a letter to Spaatz in late June, Arnold offered insight into the upcoming new manual, but he mentioned only the part about coequality and coordination, principles already accorded to airmen in Africa. Foreseeing some resistance, he told Spaatz that the new War Department doctrine was packaged as a field service regulation, theoretically binding on theater commanders, rather than as a field manual, which would serve but to guide. Evidence suggests that—whether a regulation or manual, binding or advisory—the theater did not ritualize or even openly observe FM 100-20 as a doctrinal document. As before, the strength of Army tradition in ground

warfare elicited comments from commanders in the field against centralized air.⁶⁷

Arnold and others in Washington were reacting to critiques from the field; in particular, a letter from Brig Gen Paul Robinett on 8 December 1942 had made a splash. In his letter, Robinett had complained bitterly about air support in central Tunisia. McNair told Marshall that Robinett's letter was "a vivid picture, and its lessons cannot be brushed aside."⁶⁸ Washington did not seem to understand that Eisenhower's headquarters knew conditions were primitive in Tunisia and that Robinett was judged to be out of step. The pact made by Marshall and Eisenhower in the early stages of war preparation in Washington regarding air equality—the June 1941 organization that produced the Army Air Forces in particular—and the fact that the RAF was an independent force guaranteed that airmen would have a great degree of centralized command of air resources. Spaatz did not particularly need fan mail in the guise of FM 100-20 to strengthen his hand.

Washington persisted. By mid-October 1943, the Washington air staff planners were not at all encouraged about feedback from the field. They asked War Department staff officers in G-3 to distribute a new memo, suggesting that all commanders and staff officers of battalion-sized and larger units be trained, and that "a test . . . be provided as a means of determining this knowledge." General Porter responded, suggesting rather that overseas air forces prepare proper postcombat briefings to show the effect of the new concept for command of air. He commented that the indoctrination of field and general officers in the principles of FM 100-20 would not correct deficient military observer reports. Another War Department advocate suggested that the indoctrination of these high-level officers did not matter because commanders of divisions and lower-level units exercised no influence over employment of air resources; that was accomplished by "the supreme commander through the Air Force Commander." The airmen then suggested that indoctrination occur in the United States, as it was obvious that the combat commanders were not going to bend to the new concepts.⁶⁹

Evidence also suggests that the airmen overseas did not play up the message of FM 100-20, regardless of the fact that it was distributed to all units and that every field and general officer was required to study it. Perhaps it was confusing in its mixture of directives—to the highest field command (particularly with regard to the coequality factor) and to the operational level—and its establishment of three priorities for air support. The problem, most likely, did not emanate from Eisenhower. He was already at least a mild proponent of coequality, and, besides, he was sensitive to Marshall or anything Marshall signed. He was also amenable to ideas that appeared to come from the British, with whom he was to operate throughout the war.

On the other hand, lower operational levels were on a different doctrinal level that appeared in bold relief at the end of the Tunisian campaign. Particular attention was given to the XII Air Support Command's final report. Brig Gen Paul L. Williams had pleased his immediate American air and ground superiors; he did not please, and was not happy with, Coningham and the new level of command represented by Coningham and the NATAF. His end-of-campaign report clearly reflected good feelings about American doctrine, which he generally employed. It was FM 31-35 of course, and when the report got back to Washington, Kuter asked that Williams's report be censored before it was sent around Washington and the training schools. Williams was rewarded for his good work with the XII Air Support Command by being replaced. Coningham approved Maj Gen Edwin J. House as the follow-on commander of the American tactical air contingent.⁷⁰

Coningham's comments about the changes in the United States and the efforts of Kuter and others to gain independence for the air forces illustrate how parochial concerns dominated theater thinking. Coningham was convinced that the air organization used in Africa was being copied in England, and he was happy "to polish up the whole machine, ready for possible operations of the home forces in Western Europe next year." While Coningham was convinced that the American strategic forces would lead the Americans to independence, he suggested less concern with trying to get

too much independence from tactical operations: "The Tactical Force is not so strong a lever because of its close association with the Army." For his part, Eisenhower supported Coningham when he told Arnold that the theater would handle its own problems of command relations, not referring issues "to the War Department."⁷¹

Other indicators suggest that the remarkable doctrine in FM 100-20, in terms of equality for ground and air forces and tactical air operational priorities, worked better in Washington (in principle) than it worked in the theater (in application). After all, Kuter, even with his operational experience in Africa, was pushing policy rather than reflecting field experience when he was back in Washington. Eisenhower's staff officers were well versed in air equality, but they certainly must have winced when they saw the scriptures on mission priorities. At the very least, the purpose of the writings was to keep field generals like Mark Clark and George Patton, and influential theater staff generals like Walter Bedell Smith, from getting overly egotistic in their attitude toward airmen.

Not surprisingly, Arnold complained a year later to the G-3 of the General Staff that the message of FM 100-20 had not won over field commanders—they continued to write battlefield reports denigrating the concept of a central air command of tactical air resources. The original distribution of FM 100-20 to headquarters of all battalions and larger units of each branch of the Army was not eliciting the desired change.

A careful examination of the combat theaters through the remaining months of the war shows little indication of the presence of FM 100-20, little concern about coequality at levels below the theater leadership, and very few examples of actual coequality in organizational arrangements. Air superiority was a great and certainly an initial concern; but habitually, theater leaders broke up and re-formed air units to match perceived air support needs at any particular time. Airmen did not have an opportunity to show the rest of the Army that following the principles of priority and coequality had an advantage in skinning the air-support cat. Flexibility rather than priority characterized operational functions. Perhaps coequality and priorities were not intended to have a specific effect at lower levels. Perhaps it was just an attempt by top Army leaders to

address service rivalry and influence issues in an attempt to satisfy Washington planners with a formal doctrine attuned to theater operations. In fact, it was a doctrine that authorized directives from Washington and, in most cases, it achieved just the opposite effect. Each campaign had an air-ground flavor unique to its particular conditions.

From the beginnings of airpower in the United States, discordance characterized the relationship between the air forces and other corps and services, especially when aviation grew in size and influence relative to, and often at the expense of, other Army combat branches during the interwar years. While the artillery, armor, and cavalry branches made bids for greater independence within the Army in World War II, only the Air Corps claimed a high degree of independence—as well as funding equal to that of the rest of the Army ground forces.

Tough decisions remained about employment of the air forces. It took sensitive judgment to decide what portions of the air resources would be used for independent operations and what portions would be used in direct support of the battlefield. Air and land warfare differed so fundamentally that competing voices arose during the Tunisian campaign, and some of the ground views were clearly not in focus with the uniqueness of air warfare and the conventional wisdom of the War Department. Most leaders saw that airpower was more than just airplanes serving as a useful auxiliary for the ground battle.

The work of Kuter and the score of staff officers in Washington and Orlando who produced FM 100-20 guaranteed that the airman's voice would be heard, not only in the continuing campaigns of Europe but throughout the next 50 years. For better or worse, airmen have had greater influence in the control of their forces, even in air units dedicated to ground operations.

Centralized control for flexible employment of air units was recognized before World War II, but it took something dramatic—like Kasserine, articulation of the policy by the British after their successes, and promotion of the idea by Kuter—to get it formalized in a published doctrine. However we view the process that effected this doctrinal change, we see the hand of Kuter, whose efforts underwrote a more efficient and

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effective air force—one that played a significant and invaluable role in the defeat of the German and Japanese armies.

Notes

1. Task Force Smith refers to the 1st Battalion, 21st Infantry Regiment, 24th Infantry Division, commanded by Lt Col Charles B. Smith, that faced and was defeated by an entire North Korean Division in the first action of an American force in Korea in July 1950. American commanders made the decision to send the Smith Battalion out to block the North Korean invasion near Osan without sufficient intelligence about the enemy force strength.

2. David N. Spires, *Air Power For Patton's Army: The XIX Tactical Air Command in the Second World War*, forthcoming.

3. George F. Howe, *United States Army in World War II: Mediterranean Theater of Operations: Northwest Africa: Seizing the Initiative in the West* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1957), 1–15; Harry C. Butcher, *My Three Years with Eisenhower: The Personal Diary of Captain Harry C. Butcher, USNR, Naval Aide to General Eisenhower, 1942 to 1945* (New York: Simon & Schuster, 1946), 25–32; Dwight D. Eisenhower, *Crusade in Europe* (New York: Da Capo Press, 1947, 1977), 69–73.

4. Daniel R. Mortensen, "History of Tactical Aviation" (unpublished manuscript, 1994), chap.5.

5. Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, vol. 2, *Europe: Torch To Pointblank, August 1942 to December 1943* (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983), 78–85; Howe, 253–73.

6. Craven and Cate, 78–85; Howe, 253–73.

7. Craven and Cate, 78–85; Headquarters 12th Air Force, "Standard Operating Procedures" (Air Force Historical Research Agency [AFHRA], 18 October 1942), microfilm 650.03–2, frame 1276; see also other intelligence reports. This Twelfth Air Force Headquarters intelligence procedures document spells out the expected practice whereby all groups or air commands would operate under the direct control of Air Force Headquarters. Quoted portions of this paragraph are from the following outgoing messages: Eisenhower to CG CTF (Fredendall) and to CG WTF (Patton), 23 and 28 November 1942, AFHRA, microfilm reel A6205, frame 258. One copy of the 23 November message has a handwritten side remark illuminating the truculent attitude behind the message. See also Mortensen, chap 7.

8. In mid-November, Arthur Tedder came to Dwight D. Eisenhower for a unified Mediterranean air command to carry the blessing of the British Combined Chiefs of Staff that would bring together the American air commanders who served under him in the Western Desert. These commanders included Maj Gen Lewis H. Brereton, Brig Gen Patrick W. Timberlake, and Col Uzal G. Ent. Craven and Cate, 106.

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9. See Mortensen, chap. 5, for the degree to which Eisenhower understood basic Army Air Forces air doctrine.

10. J. Scott Norwood, "Thunderbolts and Eggshells: Composite Air Operations during Desert Storm and Implications for USAF Doctrine and Force Structure" (student thesis, Maxwell AFB, Ala.: School of Advanced Airpower Studies, June 1993), 12.

11. Vincent Orange, *Coringham: A Biography of Air Marshal Sir Arthur Coringham, KCB, KBE, DSO, MC, DFC, AFC* (Washington, D.C.: Center for Air Force History, 1992), 79, 112.

12. Carl A. Spaatz to Henry H. Arnold, letter, 7 March 1943, AFHRA, Spaatz Papers, microfilm 168.491, reel 34165, frame 968/1250.

13. Howe, 363-458; Craven and Cate, 105-165.

14. Howe, 485-500.

15. Diary of Carl A. Spaatz, 17 February 1943, Spaatz Collection, Library of Congress (LOC), Washington, D.C.

16. Orange, 77-94.

17. Ibid., 79.

18. Ibid., 77-110.

19. Ibid.

20. Mortensen, chap. 10; Laurence S. Kuter, "Growth of Air Power," unpublished autobiographical manuscript, 1970s, author's files.

21. Laurence S. Kuter, "Lessons in Air Force Organization Learned from the North African War," press statement, 22 May 1943, Pentagon, AFHRA, 614.505.

22. Ibid.

23. Craven and Cate, 132-206, especially 137; Brig Gen Laurence S. Kuter, deputy commander, Tactical Air Force (Tunisian campaign), interviewed by assistant chief of Air Staff, intelligence, 25 May 1943, AFHRA, 142.052.

24. Kuter interview, 25 May 1943; Report, "NATAF Situation-on-Air-Plan in Tunisia," including appendix C (Coringham's official directive), AFHRA, 614.430-2, reel A6011, frame 1314.

25. Field Manual (FM) 1-5, *Employment of Aviation of the Army*, 18 January 1943. An excellent analysis of the debate between air and ground proponents in early 1943 is found in Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Office of Air Force History, 1993), 210-20.

26. Davis, 212-13; Brig Gen O. A. Anderson, assistant chief of Air Staff, operational plans, memorandum to Director of Air Support, subject: "Revision of FM 31-35," 25 February 1943, including attached revisions, AFHRA, 145.96-65.

27. Anderson memorandum.

28. Ibid.

29. Ibid.

30. Col H. J. Matchett, acting assistant chief of staff, G-3, memorandum to assistant chief of staff, operations division, subject: General Montgomery's

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"Notes on High Command in War," 24 April 1943, National Archives and Records Administration, Modern Military Branch, RG 165, G-3 (370.6-384).

31. Col W. H. Hardy, instructor of aviation, Command and General Staff School, Fort Leavenworth, Kans., letter and attached comments on FM 31-35, 19 February 1943, AFHRA, 145.96-65, frame 1635; Col Morton H. McKinnon, commander Air Support Command, AAFSAT, memorandum to Board of Officers Concerned, subject: Board Proceedings, Air Support Board, AAFSAT, 2 March 1943; Col Ralph F. Stearley, Air Support Directorate, Air Staff, memorandum to Col McKinnon, commander, Air Support Command AAFSAT, subject: Air Support Command Chapter, 6 March 1943; History, Air Support Department, Army Air Forces School of Applied Tactics (hereafter ASD, AAFSAT), XXXX, vol. 1, 32-34.

32. Carl A. Spaatz to Henry H. Arnold, letter, 19 February 1943, AFHRA, 168.49-1, frame 965; B. L. Montgomery, 8th Army, "Some Notes on High Command in War," 2d ed., January 1943, AFHRA, 589.84-1, frame 1083.

33. Spaatz to Arnold, letters, 19 February 1943 and 7 March 1943, frames 965 and 968; Montgomery; Robert Frank Futrell, *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907-1964* (Maxwell AFB, Ala.: Air University Press, 1989), 56.

34. Spaatz to Arnold, letter, 7 March 1943.

35. Ibid.; Laurence S. Kuter, interview, 25 May 1943; Col Ralph F. Stearley to Maj Gen St. Clair Streett, commanding general, 3d Air Force, letter, 24 April 1943, AFHRA, 168.7045-147, frame 2293.

36. Stearley, memorandum to Col McKinnon, 6 March 1943; History, ASD, AAFSAT, 32-34; Headquarters Army Air Forces (HQ AAF), *The Air Force in Theaters of Operations: Organization and Function* (Washington, D.C.: War Department, March 1943); Futrell, 68.

37. History, ASD, AAFSAT, vol. 1, 32-36; HQ AAF, *Air Force in Theaters of Operations*, 45-46.

38. Lt Col P. M. Barr, Headquarters NATAF, memorandum to Maj Gen M. S. Fairchild, subject: Organization of American Air Forces, 28 March 1943; Kuter interview, 25 May 1943. It has generally been held that the coequality and priority facets originated from Coningham and the Western Desert Air Force. The RAF never used a priority scheme, even though they gave great weight to air superiority and would easily have agreed with the concept, even if it meant a loss of flexibility if an air commander stuck tightly to the three-layer system (Mortensen, chap. 8). An indication of practices in Africa can be discerned from a training memo that carried a detailed description of the air plan, US Fifth Army, training memo No. 33, 22 April 1943. This training memo did not include the three-priority schemata, although it did incorporate Montgomery's RAF ideas. Kuter Papers, AFHRA, reel 34162, frame 902; see also Kuter, "End of Tour Report"; Laurence S. Kuter, "Organization of American Air Forces," 12 May 1943, report to CG, Army Air Forces, through channels, both in AFHRA, 614.201-1. Kuter's reports were written with the dateline NATAF HQ, 12 May 1943, although Kuter had been in the United States for several weeks.

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39. Diary of Laurence S. Kuter, 24 September 1942, AFHRA, reel 1592.
40. Kuter manuscript, 172-80.
41. History, ASD, AAFSAT, vol. 1, 30-32.
42. Ibid.
43. Robert A Lovett, assistant secretary of war for air, memorandum to Chief of Staff, subject: General Montgomery's notes on "High Command in War," 18 April 1943, NARS, ARG 165, OPD-384, box 1305.
44. George C. Marshall, memorandum to assistant chief of staff, G-3, subject: Revision of Training Literature, 24 April 1943, AFHRA, 34163, frame 1074; acting assistant chief of staff, G-3, memorandum to assistant chief of staff, OPD, subject: General Montgomery's notes on "High Command in War," 24 April 1943; Brig Gen J. S. Hull, acting assistant chief of staff, OPD, memorandum to chief of staff, 29 April 1943; Lt Gen Jacob L. Devers, commander armored forces, to Lt Col Orin H. Moore, armored force liaison officer, HQ AAF, War Department, letter, 3 May 1943, all in NARS, RG 165, G-3 (370.6-384); see also Col S. E. Anderson, memorandum to Gen J. E. Hull, acting assistant chief of staff, OPD, subject: Revision of Training Literature, 8 May 1943, NARS, RG 165, OPD-384, box 1305; Kuter to Spaatz, letter, 25 May 1943, AFHRA, Spaatz Papers, reel 34165, frame 1250.
45. Acting assistant chief of staff, G-3, memorandum, 24 April 1943.
46. Brig Gen J. S. Hull, memorandum, 29 April 1943.
47. Col Samuel Egbert Anderson, memorandum to General Hull, acting assistant chief of staff, OPD, subject: Revision of Training Literature, 8 May 1943, NARS, RG 165, OPD-384, box 1305; Gen Samuel E. Anderson, interviewed by Hugh N. Ahmann, 28-30 June 1976, AFHRA, K239.0512-905, 111, 116.
48. Brig Gen J. E. Hull, acting assistant chief of staff, OPD, memorandum to Col Samuel E. Anderson, 8 May 1943, NARS, RG 165, OPD-384, box 1305; James E. Hewes Jr., *From Root to McNamara: Army Organization and Administration, 1900-1963* (Washington, D.C.: Center of Military History, 1975), 66-67.
49. Lt Gen Ben Lear, commander, AGF, memorandum to chief of staff, subject: General Montgomery's notes on "High Command in War," 17 May 1943, NARS, RG 165, OPD-384, box 1305.
50. Brig Gen Roy E. Porter, assistant chief of staff, organization and training division, G-3, War Department General Staff, through CG, AAF, memorandum to Colonel McKinnon, 26 Aug 1943, subject: Commendation, Source, in history, ASD, AAFSAT, vol. 1, Text, 36; see also History, ASD, AAFSAT, 36-42, 494-500.
51. Statement of Laurence S. Kuter, in Pentagon Press Conference, 22 May 1943, AFHRA, 614.505. It is interesting that a few days after the 22 May interview in Washington, Kuter gave two more interviews at Orlando. He must have talked to McKinnon or seen a draft of McKinnon's work because for the first time he mentions a three-phase system of tactical aviation. He claims that Coningham's unit, the NATAF, had a directive in

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the beginning and throughout the campaign listing three phases: first, the defeat of the German air force; second, the isolation of the German army; and third, the redirection of all striking efforts against the German army in direct support of the ground push forward. Extant materials in our possession do not support this allegation about NATAF directives, nor do they match Coningham's practices in the Western Desert. This remarkable interview document also becomes the initiator of the myth about misemployed air resources in North Africa before Coningham (with Kuter as his deputy) came along to de-emphasize local control and the misuse of bombers, and to end defensive umbrella fighter support. Kuter interview, 25 May 1943; Brig Gen L. S. Kuter, interviewed by Cols Howard Engler and F. F. Everest, AAFSAT Air Room staff, Orlando, Fla., 15 June 1943, AFHRA, 248.531-6.

52. General Giles, memorandum to General Kuter, subject: New Air-Ground Support Doctrine, 28 May 1943, Library of Congress, Manuscript Division, Arnold Papers, box 42, Air Support of Armored Forces; Gen Joseph McNarney, acting chief of staff, memorandum to Gen Roy E. Porter, assistant chief of staff, G-3, subject: Revision of Training Literature, 31 May 1943, NARS, RG 165, G-3 (370.6-384); Anderson interview, 28-30 June 1976, 111-12.

53. Infantry School, "Air Ground Training," *Mailing List*, July 1943, 1-38.

54. Roy E. Porter, assistant chief of staff, G-3, memorandum to Joseph McNarney, subject: Revision of Training Literature, 19 June 1943, including indorsement, 24 June 1943; Porter, memorandum to the adjutant general, subject: Publication of FM 100-20, *Command and Employment of Air Power*, 30 June 1943, in NARS, RG 165, G-3 (370.6-384).

55. Col J. B. Burwell, G-3, memorandum to Col O. L. Nelson, assistant to the deputy chief of staff, 24 June 1943, NARS, RG 165, G-3 (370.6-384), box 122.

56. Porter memo, 19 June 1943 and 24 June 1943 endorsement; Porter memo, 30 June 1943; Samuel E. Anderson, oral history interview, 28-30 June 1976, 114-15.

57. Brig Gen Roy E. Porter, assistant chief of staff, organization and training division G-3, War Department General staff, to Col McKinnon, letter, 26 August 1943. The Marshall letter of April 24 had a clear flavor suggestive of Kuter and Coningham. On the other hand, Marshall was watchful of the air war, had received letters of air importance from Eisenhower and other field commanders, and had been at Casablanca and received firsthand the British concepts for effective air support. At the very least he must have been sold on the ideas expressed in his own letter ahead of time. They were bold if also evolutionary in terms of the thinking that went into the March 1942 reorganization which had already given airmen great independence.

58. FM 100-20, *Command and Employment of Air Power*, 21 July 1943. For years Gen Haywood S. Hansell lectured at the National War College

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deprecating that part of the original FM 31-35 that permitted subordination of air resources in extraordinary situations. General Hansell, interviewed by author, mid-1980s, author's files.

59. FM 100-20, 2-5.

60. Ibid., 6-14.

61. Ibid., 9-18.

62. Henry H. Arnold, memorandum to Laurence S. Kuter, subject: Air-Ground Technique Employed in North Africa, 9 June 1943; Kuter, memorandum to Arnold, subject: Air-Ground Technique Employed in North Africa, 10 June 1943; Laurence S. Kuter, memorandum to adjutant general, subject: Air-Ground Technique Employed in North Africa, 16 June 1943; all are in AFHRA, Kuter Collection, reel 1468, frame 999; Maj Gen Laurence S. Kuter to Col Glen W. Martin, letter, 22 November 1950, AFHSO/AFHO. (Richard Davis found this document in a Pentagon trash can.)

63. Maj Gen Roy E. Porter, assistant chief of staff, G-3, memorandum to Henry H. Arnold, subject: Indoctrination, 19 September 1944, NARS, RG 407, AG (300.7).

64. Laurence S. Kuter to Coningham, letter, 26 June 1943, AFHRA, Kuter Papers, microfilm reel 34163, frame 1077.

65. Ibid.

66. Ibid.; Davis, *Spaatz*, 140-54.

67. Kuter letter, 26 June 1943; Henry H. Arnold to Carl A. Spaatz, letter, 28 June 1943, AFHRA, Kuter Collection, reel 1468.

68. Lt Gen L. J. McNair, commanding general, Army Ground Forces, memorandum to Gen George C. Marshall, 30 December 1942, LOC, Arnold Papers, box 42. A copy went to Arnold, but Marshall also sent Arnold a copy.

69. Porter memorandum, 19 September 1944.

70. Laurence S. Kuter to assistant chief of air staff, intelligence, letter, subject: Remarks of Brig Gen Paul L. Williams, commanding XII Air Support Command, 1 July 1943, and attachments, AFHRA, Kuter Collection, reel 1468; Arthur Coningham to Laurence S. Kuter, letter, 22 July 1943, PRO AIR (London: British Archives), 23/7439.

71. Coningham to Kuter, letter, 22 July 1943; Eisenhower to Arnold, letter, 8 February 1943, AFHRA, reel A1468, frame ca 1299.

Patton and Weyland

A Model for Air-Ground Cooperation

David Spires

By the summer of 1944, Allied forces had four fighter-bomber tactical air commands supporting designated field armies in Europe; in the fall, they added a fifth. Of these, the team of Third Army, commanded by Lt Gen George S. Patton, and XIX Tactical Air Command (TAC), led by Brig Gen Otto P. Weyland, deserves special attention as the most spectacular Allied air-ground team of the Second World War. The Patton-Weyland relationship arguably proved the most satisfying of all such partnerships between air and ground commanders during the conflict. It remains today a model for air-ground cooperation.

By the time Patton and Weyland arrived in England in early 1944 to prepare for the invasion of the continent, tactical air doctrine had evolved substantially from the trial-and-error experience of North Africa. Allied air-ground teams in the northwest European operation could rely on two doctrinal manuals: FM 31-35, *Aviation in Support of Ground Forces* (9 April 1942), which prescribed precise organization and detailed procedures for specific combat situations, and the more philosophical and controversial FM 100-20, *Command and Employment of Air Power* (21 July 1943), which declared air and ground elements coequal, prescribed centralized control of air forces commanded by an air force commander, and established mission priorities of air superiority, interdiction, and close air support, in that order.¹

For Washington, D.C., headquarters service leaders and staff officers concerned with political priorities and advocacy roles, formal doctrine served as a prescript for right conduct in air-ground relations; deviations could hardly be accepted. In the field, reality tempered formal doctrine, and cooperation tended to override interservice rivalry. Doctrine always proved more flexible when interpreted by the field commanders who had to adapt doctrine to reality if they were to defeat the

common enemy. The problems and frustrations encountered in North Africa led to important improvements in command, control, and operations. By the time of the Normandy buildup in early 1944, many of the participants involved had lived through North Africa and Sicily. They had tested doctrine under combat conditions, worked out problems, and created bonds that they brought to the northwest European campaign.²

The Patton-Weyland partnership benefited from this experience. Reflecting on his pairing with Patton, Weyland later recalled that he had no idea why he was selected and admitted that "nobody was really envious of me, let's put it that way."³ Although Weyland soon overcame his apprehension, his doubts are understandable given his and Patton's differences in personality and background.

Seventeen years Weyland's senior, Patton arrived in England as a seasoned combat veteran of World War I and campaigns in North Africa and Sicily. He had a well-deserved reputation for his understanding of armored warfare, aggressive leadership, and plain talk.⁴ The soft-spoken Weyland, on the other hand, was largely unknown outside Army Air Forces circles—and he arrived in England direct from the United States with no prior combat experience.

Nevertheless, Weyland proved to be a good choice to team with Patton. Although he lacked combat experience, he had spent his entire career in tactical aviation and understood air-ground requirements better than most people in the AAF. He brought wide experience in prewar operational units, thorough knowledge of tactical air operations, and a willingness to cooperate with the Army on air-ground objectives. His more subdued personality complemented Patton's flamboyancy. If Patton overdramatically referred to his association with Weyland and the XIX Tactical Air Command as "love at first sight," the two commanders do seem to have gotten on well from the beginning.⁵

Weyland believed that his air base orientation program in England initiated Patton into the intricacies and capabilities of airpower and served to overcome Patton's unhappy experience in North Africa with Air Marshal Coningham.⁶ In fact, Patton already possessed a solid understanding and realistic

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Lt Gen George S. Patton and Brig Gen Otto P. Weyland

The leaders of the air-ground team that relieved Allied forces at Bastogne discuss the campaign against Germany. (Source: National Air and Space Museum)

appreciation of airpower, having learned to fly in the early 1920s at Mitchel Field on Long Island. He often flew during the interwar period and owned his own airplane, which he flew as senior umpire in the Louisiana maneuvers involving IV Corps in the summer of 1941. He had experimented with light planes in a variety of roles, and his experiments had contributed to the ground forces' later adopting them for liaison work. His after-action report on the Sicily campaign reveals a perceptive student of tactical aviation's capabilities and limitations. In a larger sense, Patton understood that air support had become increasingly critical for an Army that emphasized mobility over firepower.⁷

Given Patton's experience and forceful personality, one might have expected him to ride roughshod over his air commander, whom he outranked and whose command was to support the Third Army in the field. Weyland explained that during their joint training in England he and Patton had

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Patton inspects a light aircraft

This aircraft was used to direct fighter-bombers to ground targets in front of his Third Army. (Source: National Air and Space Museum)

arrived at the basic understanding that he, Weyland, “had full control of the air. The decisions were mine as to how I would allocate the air effort.”⁸ The record bears him out.

Patton clearly realized that he had in Weyland a commander who believed the ground forces deserved all the assistance his command could provide and would, if necessary, be willing to overlook convention and the precepts of normal doctrine to provide it. Indeed, among Ninth Air Force tactical air commands, only the XIX TAC flew more close air support than interdiction sorties during the campaign.⁹ Patton relished the air support he received and did not interfere with Weyland’s command; he preferred the role of chief advocate for the XIX Tactical Air Command with the press corps and within Allied councils.¹⁰

The initial rapport, confidence, and understanding established in England matured during four subsequent campaigns. Weyland’s tactical air forces demonstrated the soundness of

their liberal interpretation of doctrine and organization as well as an ability to minimize the limitations of airpower.

Entering the Battle

After waiting in the wings during the fighting in Normandy, the Third Army-XIX TAC team officially entered the battle for France on 1 August. Immediately, Weyland faced a great challenge—how to support Third Army's blitzkrieg drive across France to the German border. Although his command grew to nine fighter-bomber groups (six P-47 groups, two P-51 groups, one reconnaissance group) totaling 400 aircraft, nothing in his own experience or the doctrinal manuals prepared Weyland for the kind of pursuit that eventually found his forces supporting operations on several fronts from the Breton Peninsula to the Mosel River. The more rapidly Patton advanced, the more difficult it became for Weyland's airfield engineers and his communications, maintenance, and supply elements to keep pace. Too often, Weyland found himself the proverbial "fireman," scurrying back and forth, attempting to maintain control and ensure effective operations.¹¹



Stinson L-5s and Piper L-4s

These light aircraft are being prepared for shipment to France. (Source: National Air and Space Museum)

Weyland proved a fast learner. The pace of the advance compelled him and his staff to reassess formal tactical air doctrine. Like the army his command supported, he needed to decentralize operations and disperse his forces, far more than established doctrine suggested or the planners had expected. At one point, XIX TAC deployed four headquarters elements that controlled fighter groups based in three different areas and staging from several others. Mission priorities became reversed. Weyland declared that the "first priority was cover of the armored units" in the form of dedicated air patrols—the same policy found so objectionable in North Africa because it prevented the concentration of airpower.¹²

Weyland always looked back on the battle for France as his command's finest hour.¹³ Yet, despite an extremely decentralized command and control and a generous interpretation of mission priorities, the conduct of mobile warfare on several fronts presented the XIX TAC a challenge it could never completely master. Supporting a variety of operations over vast distances, it invariably found itself unable to concentrate its airpower on one particular front without bringing suffering to the others. Only in late September could Weyland concentrate his full force on Third Army's eastern front. By then, bad weather, limited night flying capability, the Third Army's own supply shortages, and strengthened enemy defenses conspired to halt Third Army's offensive. The XIX Tactical Air Command's dilemma in September suggests that tactical air forces continued to represent a limited resource.¹⁴

Over the course of the battle for France, the Third Army and XIX TAC developed the teamwork, cooperation, experience, and esprit necessary to mold a first-class fighting team. This relationship would continue to develop throughout the remainder of the campaign. Then came Lorraine.

The postwar Army has studied the Lorraine campaign in detail, but the Air Force's role has largely been ignored in favor of the more exciting blitzkrieg in France and rescue operations in the Ardennes.¹⁵ Here, despite the advantage of overwhelming air superiority, mobility, and flexibility to swiftly concentrate forces against targets, tactical airpower's key advantages proved largely ineffective in static warfare

characterized by stiff defenses, bad weather, and the tyranny of logistics. Although proximity to the front eliminated many problems present earlier in France, Weyland's forces, which had been reduced from eight to four groups to reflect the priority of the northern Allied flank, proved unable to propel a correspondingly reduced Third Army through the Siegfried Line under conditions similar to those of World War I.¹⁶

Inexorably, the challenge of operating in Lorraine with reduced forces compelled closer joint planning between air and ground officers in order to maximize the use of their limited resources. Weyland revealed himself to be a resourceful and pragmatic commander who did not allow doctrinal pronouncements to dictate his actions; he often stressed close air support actions at the expense of interdiction. In one of the central developments in air-ground cooperation, he became the key figure in planning air support that included medium and heavy bomber assaults for three joint operations undertaken by Third Army against German border defenses.¹⁷

On the eve of the final joint offensive in mid-December, Patton met the press with his air commander. In order to inform the public at home, they discussed the "method of air-ground tactical cooperation." After Patton explained that "no operation is contemplated without General Weyland and his staff being present," Weyland said one key reason for the successful joint effort was that Third Army staff people understood "not only the capabilities . . . of air but also the limitations. . . . Third Army does not look upon the XIX Tactical Command as a cure-all." He then turned to the heart of the relationship: "Our success is built on mutual respect and comradeship between the air and ground. . . . You can talk to any of my boys about that. . . . My boys like the way the Third Army fights. My kids feel that this is their Army."¹⁸

In the Ardennes campaign, the third major operation for Third Army and the XIX Tactical Air Command, tactical airpower was challenged to react to a major threat without benefit of prior extensive joint planning between air and land force commanders. Assigned to the counterattack, Weyland showed that tactical airpower could rapidly concentrate to

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blunt, and then help repulse, a powerful enemy assault in spite of weather delays, a small night-fighter force, heavy enemy flak defenses, and the most serious "friendly fire" problem since Operation Cobra. At the same time, Ninth Air Force units slowly isolated the Ardennes battlefield from the German supply base.¹⁹

Weyland directed tactical air operations in the southern half of the Bulge, reaffirming the flexibility of tactical airpower and demonstrating just how far doctrine, organization, procedures, and experience levels of airmen had developed since the North African campaign. With hardly a pause, airplanes flew north to cover Patton's fire brigade and east to harry German supply lines while a resurrected mobile command echelon ensured close coordination with the Third Army. Meanwhile, Weyland marshaled his support elements to make the extraordinary effort necessitated by the urgency of the situation.

With an expanded command of eight fighter-bomber groups, Weyland's responsibilities and effectiveness increased. Three groups always provided close air support while three others concentrated on interdiction. That left two others to fly escort, counterair, and defensive patrol, and to strike the pinpoint targets that seemed to need attention on a regular basis. Tactical airpower continued to be a limited resource, challenging leaders to use it wisely.

Teamwork and cooperation in the Ardennes ultimately overcame the worst of the "friendly fire" incidents, as they did most of the other problems. Weyland and/or his mobile command post chief regularly attended the Third Army's morning briefings to ensure continued joint planning and operations. The recently established combined operations office at corps and division levels allowed smooth and effective coordination among reconnaissance and fighter aircraft, ground controllers, and artillery units. Characteristically, the first priority proved to be air cover for the ground forces. Patton never interfered with the basic air plan to support his forces in the Bulge and to participate in Ninth Air Force's interdiction program. In the end, tactical airpower in the Bulge operation, even as a limited resource, proved capable of



Republic P-47

The P-47 fighter-bomber was the weapon of choice for the tactical air units in Europe. It conducted ground attacks after its escort duties were completed. (Source: National Air and Space Museum)



A P-47 crew warms up

The P-47s in the background taxi up for a bombing mission over German lines. (Source: National Air and Space Museum)



Maj Gen Otto P. Weyland

General Weyland has a fancy office in Luxembourg in 1945. (Source: National Air and Space Museum)

providing sufficient concentration of force for decisive intervention on the battlefield.

The last offensive, which carried the Third Army-XIX TAC team through the Siegfried Line and across Germany, combined elements from earlier breakout and pursuit operations with the entrapment of German forces in the Eifel and Palatinate regions. As in earlier offensives, Weyland's experienced forces could rely on overwhelming air superiority and devote the bulk of their flying effort to second- and third-priority missions: interdiction and close air support, respectively.²⁰

During the final campaign, Weyland and his airmen continued to take liberties with formal doctrine as conditions dictated. When the air-ground team faced more mobile conditions after the Rhine crossing in late March, his command developed new means to decentralize control of

PATTON AND WEYLAND



Douglas A-20 Havocs

These Havocs of the 410 Bomb Group supported Patton as well as other Allied ground commanders. (Source: National Air and Space Museum)



Sitting in a P-47

Weyland was promoted to major general in early 1945. (Source: National Air and Space Museum)

AIRPOWER AND GROUND ARMIES



Patton, Weyland, and others watch a fighter-bomber formation

Patton, at left, acknowledged the superb air support rendered by the men and planes of Weyland's XIX Tactical Air Command. (Source: National Air and Space Museum)

armed reconnaissance and close air support missions in the field. These actions went far toward providing Third Army's corps and divisions with their own rapid-response air arm. Weyland relied not only on mastery of the air, but also on the experience, trust, and confidence of the air-ground team, from the top echelon to the lower levels of command.

Postscript

In the highly charged postwar period, Army Air Forces leaders moved swiftly and purposefully in the direction of an independent air force. In the late 1940s, many Army officers worried that the new Air Force's control of tactical airplanes and equipment, its doctrinal assertions, and its overwhelming strategic priorities in the emerging cold war meant that the Army faced the prospect of *less* rather than *more* tactical air support for ground operations. Critics found fault with the air-ground relationship during the Second World War and often resorted to doctrinal statements to support their perceptions of air-ground disagreements and controversy.²¹

PATTON AND WEYLAND



Generals Patton and Weyland

These commanders, one ground and one air, had a good relationship. (Source: National Air and Space Museum)

General Weyland exemplified the type of practical leader who came to dominate tactical air operations in the European theater. At no time during the campaign in Europe did he pander to any formal War Department document on tactical airpower doctrine in day-to-day operations. Using doctrine as a loose guide rather than an inflexible dogma, Weyland approached each situation on its own terms. Only with the end of the war in sight and the spate of wartime analyses of airpower underway, and with air leaders beginning to plan for an independent air force, did Weyland feel compelled formally to validate doctrine. Even then, his theme remained air-ground cooperation and the importance of preserving it for the future.²²

The very fact that the Allies achieved general air superiority—their number one air objective at the start of operations on the continent—meant that sufficient attention could be devoted to conducting air operations much as Weyland

and his fellow planners had intended. Success allowed General Weyland to provide far more close support to General Patton's forces than doctrine or experience had envisioned. Control of the air also made the inherent limitations of tactical aviation more manageable because it freed the command from excessive concern about the Luftwaffe threat.

Examination of the Third Army-XIX TAC partnership suggests that the shibboleth of doctrine and the traditional concerns about Army-Air Force rivalry have obscured the reality of air-ground relationships and operations in the Second World War. To be sure, this is only one tactical airpower experience, but we hope it represents just the first among many comparative studies of Allied tactical air commands to show that cooperation, not confrontation, characterized the air-ground story.

The success of tactical airpower in the European campaign resulted from the timely convergence of four important developments: (1) the maturity of tactical aviation doctrine; (2) effective organization and procedures that stressed joint planning and operations at all levels; (3) a technical revolution that produced superb fighter-bomber aircraft and the communications required for successful command and control; and (4) above all, pragmatic, can-do people to make the system work properly.

The lesson is, clearly, that air superiority is only the first step. It ensures neither centralized control of air assets by airmen nor proper interdiction and close-air support programs. Although doctrine may very well be correct in principle, no air-ground program can succeed without efficient resources and the cooperation of air commanders and ground commanders. Generals Weyland and Patton knew this.

Writing to Weyland after the war, Patton said, "I told General Eisenhower during the campaign that I would be perfectly happy to have you as a Corps Commander at any time."²³ Patton did not see his tactical air commander in a different uniform. Can one imagine an Army commander today seriously considering an Air Force two-star for command of a corps?

The Patton-Weyland partnership, which was founded on mutual trust and respect, and on common interest, is the

basic lesson from the Second World War for tactical airpower; it remains worth studying.

Notes

1. Field Manual (FM) 31-35, *Aviation in Support of Ground Forces*, 9 April 1942; FM 100-20, *Command and Employment of Air Power*, 21 July 1943.
2. Significantly, the most important study used to prepare for air-ground operations on the continent came directly from North Africa rather than from Headquarters AAF in Washington. Col Philip Cole et al., VIII Air Support Command, "Observers Report: Air Operations in Support of Ground Forces in North West Africa (15 March-April 1943)," report to Headquarters Eighth Air Force, 1 July 1943, Air Force Historical Research Agency (AFHRA), 650.03-2.
3. Gen O. P. Weyland, interviewed by Dr. James C. Hasdorf, 19 November 1974, AFHRA, K239.0512-813, 140.
4. On Patton's career, see Claude S. Erbsen, "Old Blood and Guts," *Weekly Philatelic Gossip*, 21 November 1953, 366-68; "Biographical Notes on General George S. Patton, Jr.," Patton Collection, box 5, chronological file, Military Documents [MD], Library of Congress [LOC], Washington D.C.; Martin Blumenson, *Patton: The Man Behind the Legend, 1885-1945* (New York: Morrow, 1985); and Martin Blumenson, ed., *The Patton Papers* (Boston: Houghton Mifflin, 1974).
5. The quote is from George S. Patton Jr., *War As I Knew It* (Boston: Houghton Mifflin Co., 1947), 99. On Weyland's career, see Weyland interview, 19 November 1974; Ninth Air Force, "Biographies," Maxwell AFB, Ala., AFHRA, 1944, 533.293; and History, XIX Tactical Air Command, 4 December 1943-30 June 1944.
6. Weyland interview, 64-76. On the Patton-Coningham incident, see Diary of George S. Patton, entries 1-4 April 1943, Patton Collection, box 3, MD, LOC, Washington, D.C. The diary account in the collection includes the official messages. See also Blumenson, 203-8; Laurence S. Kuter, "Goddamn it Georgie: North Africa, 1943: The Birth of TAC Doctrine," *Air Force Magazine* 56 (February 1973): 55.
7. Blumenson, 30; Report, Headquarters Seventh Army, "Notes on the Sicilian Campaign," 30 October 1943.
8. Weyland interview, 19 November 1974, 67, 76.
9. Report, Air Effects Committee (12th Army Group), "Effect of Air Power on Military Operations, Western Europe," 15 July 1945, chap. 3. According to this analysis, prepared under the direction of Gen Omar Bradley, XIX TAC devoted 42 percent of its sorties to close air support and 40 percent to interdiction. The figures for IX TAC are 27 percent and 46 percent, and for XXIX TAC they are 33 percent and 47 percent, respectively.
10. Gen James Ferguson, interview, 14 June 1988, on file at Air University television studio, Maxwell AFB, Ala.

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11. On XIX TAC operations in France, see Otto P. Weyland, "Diary, 29 Jul 44–18 May 45," AFHRA, 168.7104-1; Third US Army, "After Action Report," August Operations, September Operations, 1944; XIX TAC, "12,000 Fighter-Bomber Sorties"; History, XIX TAC, 1 July 1944–28 February 1945, pt. 2; XIX TAC, "A Report on the Combat Operations of the XIX Tactical Air Command," 30 May 1945, AFHRA, 537.02; XIX TAC, "Morning Summaries," 8 August–September 1944, AFHRC, 537.306A.

12. XIX TAC, "Report on Combat Operations," 53.

13. Ferguson interview, 14 June 1988. The command celebrated its exploits in France through publications like XIX TAC, "12,000 Fighter-Bomber Sorties"; *Air-Ground Teamwork on the Western Front: The Role of the XIX Tactical Air Command during August 1944*, Wings at War Series, no. 5 (Washington, D.C.: Headquarters AAF, August 1944; Center for Air Force History, 1992); XIX TAC "Planes Over Patton: XIX Tactical Air Command's Support of Third in Its Swift End-Run Through France," 30 September 1944, AFHRA, 168.7104-86, 30 September 1944; and *Impact: U. S. Tactical Airpower* 3, no. 5 (May 1945): AFHRA, 168.7104-92, May 1945.

14. See note 11.

15. On the Army's Lorraine Campaign studies, see Col Donald P. Shaw, to Lt Gen DeWitt C. Smith Jr., USA, Retired, letter, subject: Study of the Lorraine Campaign, 11 February 1982; Dr. Christopher R. Gabel, "The Lorraine Campaign: An Overview, September–December 1944" (thesis, Fort Leavenworth, Kans., 1985). On the Air Force issue, for example, the official account of air action finds tactical operations well overshadowed by the strategic bombing campaign and special operations. See Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 3., *Europe: Argument to V-E Day, January 1944–May 1945* (1951; new imprint, Washington, D.C.: Office of Air Force History, 1983), 595–635.

16. See Third US Army, "After Action Report," September, October, November, December Operations; XIX TAC, "Morning Summaries," 25 September–16 December 1944; Ninth Air Force, "Summary of Operations," 25 September–16 December 1944, AFHRA, 533.3082; XIX TAC, "Daily Intelligence Summaries," 25 September–16 December 1944, AFHRA, 537.606; History, XIX TAC, 1 July 1944–28 February 1945.

17. Weyland "Diary," September–December 1944.

18. General Patton, General Weyland, and Third Army Correspondents, Conference, 9 December 1944, AFHRC, 168.7104-101.

19. See Weyland "Diary," December 1944–February 1945; Third US Army, "After Action Report," vol. 1, December, January Operations; XIX TAC, "Morning Summaries," 16 December 1944–31 January 1945; Ninth AF, "Summary of Operations," 16 December 1944–31 January 1945; XIX TAC, "Daily Intelligence Summaries," 16 December 1944–31 January 1945; History, XIX TAC, 1 July 1944–28 February 1945, vol. 2, December 1944, January 1945 Operations; History, XIX TAC, 1 July 1944–28 February 1945, appendix, "Statistical Summary."

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20. On the air campaign, see History, XIX TAC, February, March, April, May 1945; XIX TAC, "Morning Summaries," 28 January-8 May 1945; XIX TAC, "Daily Intelligence Summaries (INTSUM)," 28 January-8 May 1945; 9th AF, "Summary of Operations," 28 January-8 May 1945.

21. On the relations between Army Ground Forces and Army Air Forces headquarters and postwar tactical air power developments, see Caroline F. Ziemke, "In the Shadow of the Giant: USAF Tactical Air Command in the Era of Strategic Bombing, 1945-1955" (PhD diss., Ohio State University, 1989), 1-75.

22. XIX TAC, "Report on Combat Operations," Introduction.

23. George S. Patton Jr., to O. P. Weyland, letter, 21 September 1945, Patton Collection, Personal and Professional Correspondence, box 3, MD, LOC.

APPENDIX

WAR DEPARTMENT FIELD MANUAL

FM 100-20

COMMAND
AND EMPLOYMENT
OF AIR POWER



WAR DEPARTMENT • 21 JULY 1943

United States Government Printing Office
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WAR DEPARTMENT,

WASHINGTON 25, D. C., 21 July 1943.

FM 100-20, Field Service Regulations, Command and Employment of Air Power, is published for the information and guidance of all concerned.

[A. G. 300.7 (30 Jun 43).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,

OFFICIAL:

Chief of Staff.

J. A. ULIO,

Major General,

The Adjutant General.

DISTRIBUTION:

Bn and H 1 (8), 2-55 (5).

(For explanation of symbols see FM 21-6.)

FM 100-20

FIELD SERVICE REGULATIONS

COMMAND AND EMPLOYMENT OF AIR POWER

(This manual supersedes FM 1-5, 18 January 1943. Pending revision of existing War Department publications which are affected by the publication of FM 100-20, whenever their contents are in conflict with the provisions of this manual, these instructions will govern.)

CHAPTER 1

GENERAL

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SECTION I

DOCTRINE OF COMMAND AND EMPLOYMENT

■ 1. RELATIONSHIP OF FORCES.—LAND POWER AND AIR POWER ARE CO-EQUAL AND INTERDEPENDENT FORCES; NEITHER IS AN AUXILIARY OF THE OTHER.

■ 2. DOCTRINE OF EMPLOYMENT.—THE GAINING OF AIR SUPERIORITY IS THE FIRST REQUIREMENT FOR THE SUCCESS OF ANY MAJOR LAND OPERATION. AIR FORCES MAY BE PROPERLY AND PROFITABLY EMPLOYED AGAINST ENEMY SEA POWER, LAND POWER, AND AIR POWER. HOWEVER, LAND FORCES OPERATING WITHOUT AIR SUPERIORITY MUST TAKE SUCH EXTENSIVE SECURITY MEASURES AGAINST HOSTILE AIR ATTACK THAT THEIR MOBILITY AND ABILITY TO DEFEAT THE ENEMY LAND FORCES ARE GREATLY REDUCED. THEREFORE, AIR FORCES MUST BE EMPLOYED PRIMARILY AGAINST THE ENEMY'S AIR FORCES UNTIL AIR SUPERIORITY IS OBTAINED. IN THIS WAY ONLY CAN DESTRUCTIVE AND DEMORALIZING AIR ATTACKS AGAINST LAND FORCES BE MINIMIZED AND THE INHERENT MOBILITY OF MODERN LAND AND AIR FORCES BE EXPLOITED TO THE FULLEST.

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■ 3. COMMAND OF AIR POWER.—THE INHERENT FLEXIBILITY OF AIR POWER, IS ITS GREATEST ASSET. THIS FLEXIBILITY MAKES IT POSSIBLE TO EMPLOY THE WHOLE WEIGHT OF THE AVAILABLE AIR POWER AGAINST SELECTED AREAS IN TURN; SUCH CONCENTRATED USE OF THE AIR STRIKING FORCE IS A BATTLE WINNING FACTOR OF THE FIRST IMPORTANCE. CONTROL OF AVAILABLE AIR POWER MUST BE CENTRALIZED AND COMMAND MUST BE EXERCISED THROUGH THE AIR FORCE COMMANDER IF THIS INHERENT FLEXIBILITY AND ABILITY TO DELIVER A DECISIVE BLOW ARE TO BE FULLY EXPLOITED. THEREFORE, THE COMMAND OF AIR AND GROUND FORCES IN A THEATER OF OPERATIONS WILL BE VESTED IN THE SUPERIOR COMMANDER CHARGED WITH THE ACTUAL CONDUCT OF OPERATIONS IN THE THEATER, WHO WILL EXERCISE COMMAND OF AIR FORCES THROUGH THE AIR FORCE COMMANDER AND COMMAND OF GROUND FORCES THROUGH THE GROUND FORCE COMMANDER. THE SUPERIOR COMMANDER WILL NOT ATTACH ARMY AIR FORCES TO UNITS OF THE GROUND FORCES UNDER HIS COMMAND EXCEPT WHEN SUCH GROUND FORCE UNITS ARE OPERATING INDEPENDENTLY OR ARE ISOLATED BY DISTANCE OR LACK OF COMMUNICATION.

SECTION II

MILITARY AVIATION

■ 4. GENERAL CATEGORIES.—Aviation of the United States Army, referred to herein as military aviation, falls into two general categories as follows:

a. Aviation directly under command and control of the Commanding General, Army Air Forces. Included in this category are—

(1) All nontactical elements of the Army Air Forces such as those used for training, research, development, test, procurement, storage, issue, maintenance, and transport.

(2) All tactical units of the Army Air Forces not assigned to a theater or task force Commander.

b. Aviation directly under command and control of other commanders. (The Commanding General, Army Air Forces, has such technical command of this aviation as is necessary for the control and supervision of training and the supply and maintenance of equipment peculiar to the Army Air Forces.) This category consists of air forces assigned to theater or task force commanders.

■ 5. TYPES OF TACTICAL AVIATION.—In accordance with the purpose for which various types of aircraft are ordinarily employed, tactical aviation is organized, trained, and equipped to engage in offensive and defensive air operations. Corresponding to the means with which equipped, tactical aviation is divided into bombardment, fighter, reconnaissance, photographic, and troop-carrier aviation.

a. Bombardment aviation is the term applied to all aircraft designed for the air attack of surface objectives, and the organizations equipped with such aircraft.

b. Fighter aviation is the term applied to all aircraft designed for offensive air fighting, and the organizations equipped with such aircraft. (Fighter-bomber aircraft are fighters modified so that they may attack surface objectives.)

c. Reconnaissance aviation is the term applied to air units which perform the service of information for military commands. The function of reconnaissance aviation is to secure information by visual and photographic means and to return this information for exploitation.

d. Photographic aviation is the term applied to air units which perform photographic reconnaissance missions beyond the responsibilities or capabilities of reconnaissance aviation and special photogrammetric mapping missions for engineer topographic troops.

e. Troop carrier (including gliders) is the term applied to air units which carry parachute troops, airborne troops, and cargo.

f. The tactics and technique of performing the functions of air attack, air fighting, and air reconnaissance are set forth in FM 1-10, 1-15, and 1-20. Communication procedure essential to air force operations is contained in FM 31-35 and FM 1-45.

SECTION III

ORGANIZATION

■ 6. IN A THEATER OF OPERATIONS.—In a theater of operations, there will normally be one air force. This air force will be organized in accordance with the task it is required to perform in any particular theater and, therefore, no set organization of an air force can be prescribed. However, the normal composition of an air force includes a strategic air force, a tactical air force, an air defense command, and an air service command. An air force may also include troop carrier and photographic aviation.

■ 7. OF AVIATION UNITS.—a. Tactical air units of the Army Air Forces from the smallest to the largest are designated flight, squadron, group, wing, division, command, and air force. The method of assignment and employment of the air forces necessitates a highly flexible organization within tactical units.

b. (1) The flight is the basic tactical grouping or unit of the Army Air Forces and consists of two or more airplanes.

(2) The squadron is the basic administrative and tactical unit and consists of three or four flights, depending upon the type of aviation.

(3) The group, composed of three or more squadrons, is both tactical and administrative; it contains all the elements essential for its air operations.

(4) The wing is the next higher unit of the Army Air Forces and its functions are primarily tactical.

(5) Two or more wings may be combined to form an air division.

(6) An "air command" may include divisions, wings, groups, service and auxiliary units, and is both tactical and administrative.

(7) The air force is the largest tactical unit of the Army Air Forces. It may contain a strategic air force, a tactical air force, an air defense command, and an air service command. It requires aviation engineer units for the construction and maintenance of air bases.

c. Units are designated according to their primary functions; for example, reconnaissance squadron, fighter group, bomber wing, air service command.

d. Ordinarily the group is the largest unit of the Army Air Forces that will operate in the air as a tactical entity under the command of one individual. Many air operations are conducted by smaller units. Reconnaissance and photographic missions, and less frequently bombardment missions, may be carried out by single airplanes with the required fighter cover.

e. In addition to tactical units, units are organized for the purpose of maintenance and supply and for facilitating air operations. These units comprise personnel of the Army Air Forces and Army Service Forces who are trained for rendering service for the Army Air Forces. The maintenance and service units serving an air force are collectively designated the air service command.

CHAPTER 2

AIR OPERATIONS

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SECTION I

GENERAL

■ 8. BASIC TASKS.—The combat operations in which air force units are engaged are directed toward the accomplishment of the following basic tasks:

a. Destroy hostile air forces. This will be accomplished by attacks against aircraft in the air and on the ground, and against those enemy installations which he requires for the application of air power.

b. Deny the establishment and destroy existing hostile bases from which an enemy can conduct operations on land, sea, or in the air.

c. Operate against hostile land or sea forces, the location and strength of which are such as to threaten the vital interests of the United States or its Allies.

d. Wage offensive air warfare against the sources of strength, military and economic, of the enemies of the United States and its Allies, in the furtherance of approved war policies.

e. Operate as a part of the task forces in the conduct of military operations.

f. Operate in conjunction with or in lieu of naval forces.

■ 9. BASIC DOCTRINE OF EMPLOYMENT.—a. A knowledge of the powers and limitations of military aviation is a prerequisite to sound employment. Air operations almost invariably precede the contact of surface forces. The orderly mobilization and strategic concentration of the field forces and their

ability to advance from their concentration areas in accordance with the strategical plan of operations depend in large measure on the success of these early air operations.

b. Air operations in joint Army and Navy operations are undertaken in furtherance of the strategical and tactical plan. They include the air operations for which the Army is responsible under special regulations governing joint action of the Army and the Navy. The success of such air operations can be assured only by adequate joint training and careful joint planning.

c. Complete control of the air can be gained and maintained only by total destruction of the enemy's aviation. Since this is seldom practicable, counter air force operations in the theater must be carried on continuously and intensively to gain and maintain air supremacy and to provide security from hostile air operations.

d. The impracticability of gaining complete control of the air necessitates the constant maintenance of air defenses to limit the effectiveness of enemy air operations.

e. In order to obtain flexibility, the operations of the constituent units of a large air force must be closely coordinated. Flexibility enables air power to be switched quickly from one objective to another in the theater of operations. Control of available air power in the theater must be centralized and command must be exercised through the air force commander.

f. Experience in combat theaters has proved the requirement for centralized control, by the air commander, of reconnaissance aviation as well as other types of aviation. Reconnaissance missions must be closely coordinated with our own fighter activities and are directly influenced by hostile fighter action. The attachment of a reconnaissance unit to the corps or smaller ground unit would deprive that reconnaissance unit of essential operating information and fighter protection which are readily available to the air commander only. The information of hostile air activities gained by the aircraft warning service will be furnished by the air commander to missions prior to take-off; and when urgent, to the reconnaissance unit in the air. This central-

ized control improves operating efficiency of reconnaissance aviation and limits reconnaissance losses. The Army Air Forces is responsible for providing the reconnaissance and photographic missions essential to the success of the ground forces in each theater of operations. The absence of reconnaissance units specially trained and equipped for the performance of such missions does not alter this responsibility.

g. When task forces are formed because of isolation by distance or lack of communication, the doctrine of command still applies (sec. I, ch. 1). The task force commander will command his ground forces through a ground force commander and his air force through an air commander.

■ 10. AIR BASES.—Air bases, suitably located, are essential for the sustained operation of military aviation.

a. Much of the equipment pertaining to aircraft is of a complex and highly technical nature; its operation requires highly trained air crews; its maintenance and repair require mechanics with specialized skill. All aircraft need regular and frequent care and maintenance. They are vulnerable to air attack both in flight and on the ground. The fatigue of air crews and the repair and reservicing of equipment and material require all aviation units to operate from air bases where the necessary facilities are provided for security, rest, replacement, maintenance, and repair.

b. The essential requirements for base facilities are landing areas, facilities for tactical control and planning, administration, maintenance, repair and supply, and provisions for the security of personnel and equipment on the ground. Aviation engineers are essential for the construction and maintenance of air bases. Adequate communications for the control and direction of air operations and for liaison are required.

SECTION II

STRATEGIC AIR FORCE

■ 11. GENERAL.—Strategic air force operations are undertaken in furtherance of the strategic plans prepared by the War Department General Staff. The selection of strategic

objectives is a responsibility of the theater commander. Ordinarily, the theater commander will control these air operations by the assignment of a broad general mission to the air force commander. The air force commander executes the assignment by means of a directive to the strategic air force commander and general supervision of his forces.

■ 12. MISSIONS.—Generally, the aim of the strategic air force is the defeat of the enemy nation. Missions are selected which make a maximum contribution to this aim. Objectives may be found in the vital centers in the enemy's lines of communication and important establishments in the economic system of the hostile country. Objectives are selected in accordance with the ultimate purpose of the strategic plan. Counter air force operations necessary to neutralize or limit the power of the enemy's air forces are of continuing importance. Although normally employed against objectives listed above, when the action is vital and decisive, the strategic air force may be joined with the tactical air force and assigned tactical air force objectives.

■ 13. COMPOSITION.—The strategic air force is normally comprised of heavy bombardment, fighter, and photographic aviation. Heavy bombardment aviation is the backbone of the strategic air force. This class of aviation is characterized by its ability to carry heavy loads of destructive agents for great distances. It is also capable of conducting long-range strategic reconnaissance over land and sea. It relies upon speed, altitude, defensive fire power, and armor for security. Accompanying fighter aviation, where its radius of action permits, is also used to increase security. Fighter aviation furnishes air defense for bombardment bases. Photographic aviation performs long range high altitude photographic missions for the theater, air force, and strategic air force commanders.

SECTION III

TACTICAL AIR FORCE

■ 14. GENERAL.—a. In a theater of operations where ground forces are operating, normally there will be a tactical air force. Modern battle strategy and tactics derive success to

the degree that air power, sustained and in mass, is employed properly by the theater or task force commander.

b. The decision to launch a combined operation and to wage subsequent offensives is strongly influenced by the quantity and quality of air strength available.

c. Forces must be developed and committed to battle with overwhelming air components opposing estimated enemy air capabilities.

d. Tactical air force operations and ground force operations in the theater or task force will be coordinated by means of timely planning conferences of pertinent commanders and staffs, and through the exchange of liaison officers. Air and ground liaison officers will be officers who are well versed in air and ground tactics.

e. In modern battle operations, the fighting of land elements and the general air effort in the theater must be closely coordinated. The air battle should be won first whenever other considerations permit (par. 2).

■ 15. COMPOSITION.—a. The tactical air force may contain the following: reconnaissance aviation, light and medium bombardment units, fighter aviation and an aircraft warning service. This force does not serve the ground forces only; it serves the theater. Aviation units must not be parceled out as the advantage of massed air action and flexibility will be lost.

b. In a particularly opportune situation (offensive) or a critical situation (defensive), a part or a whole of the strategic air force may be diverted to tactical air force missions.

■ 16. MISSIONS.—a. The mission of the tactical air force consists of three phases of operations in the following order of priority:

(1) *First priority*.—To gain the necessary degree of air superiority. This will be accomplished by attacks against aircraft in the air and on the ground, and against those enemy installations which he requires for the application of air power.

(2) *Second priority*.—To prevent the movement of hostile troops and supplies into the theater of operations or within the theater.

(3) *Third priority.*—To participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces.

b. (1) *First priority.*—The primary aim of the tactical air force is to obtain and maintain air superiority in the theater. The first prerequisite for the attainment of air supremacy is the establishment of a fighter defense and offense, including RDF (radio direction finder), GCI (ground control interception), and other types of radar equipment essential for the detection of enemy aircraft and control of our own. While our air superiority is maintained, both the ground forces and the air force can fight the battle with little interference by the enemy air. Without this air supremacy, the initiative passes to the enemy. Air superiority is best obtained by the attack on hostile airdromes, the destruction of aircraft at rest, and by fighter action in the air. This is much more effective than any attempt to furnish an umbrella of fighter aviation over our own troops. At most an air umbrella is prohibitively expensive and could be provided only over a small area for a brief period of time.

(2) *Second priority.*—The disruption of hostile lines of communication (and at times lines of signal communication), the destruction of supply dumps, installations, and the attack on hostile troop concentrations in rear areas will cause the enemy great damage and may decide the battle. This accomplishes the "isolation of the battlefield." If the hostile force is denied food, ammunition, and reinforcements, aggressive action on the part of our ground forces will cause him to retire and the immediate objective will be gained. Massed air action on these targets with well-timed exploitation by ground forces should turn the retirement into rout.

(3) *Third priority.*—The destruction of selected objectives in the battle area in furtherance of the combined air-ground effort, teamwork, mutual understanding, and cooperation are essential for the success of the combined effort in the battle area. In order to obtain the necessary close teamwork the command posts of the Tactical Air Force and of the ground force concerned should be adjacent or common, at least during this phase of operations. Air and ground commanders

profit greatly from the other's successes. Airplanes destroyed on an enemy airdrome and in the air can never attack our troops. The advance of ground troops often makes available new airdromes needed by the air force. Massed air action on the immediate front will pave the way for an advance. However, in the zone of contact, missions against hostile units are most difficult to control, are most expensive, and are, in general, least effective. Targets are small, well-dispersed, and difficult to locate. In addition, there is always a considerable chance of striking friendly forces due to errors in target designation, errors in navigation, or to the fluidity of the situation. Such missions must be against targets readily identified from the air, and must be controlled by phase lines, or bomb safety lines which are set up and rigidly adhered to by both ground and air units. Only at critical times are contact zone missions profitable.

SECTION IV

AIR DEFENSE COMMAND

■ 17. GENERAL.—a. Air defense is the direct defense against hostile air operations as distinguished from the indirect defense afforded by counter air force operations. Air defense comprises all other methods designed to prevent, to interfere with, or to reduce the effectiveness of hostile air action.

b. Air defense is divided into active air defense and passive air defense.

(1) Active air defense comprises all measures aimed to destroy or to threaten destruction of hostile aircraft and their crews in the air. Active air defense is provided by fighter aircraft, antiaircraft artillery, and small arms fire; and by obstacles, principally barrage balloons.

(2) Passive air defense is provided by dispersion, camouflage, blackouts, and other measures which minimize the effect of hostile air attack.

■ 18. COMPOSITION.—a. The active air defense means for any area may include fighter aviation, antiaircraft artillery, searchlights, barrage balloons and aircraft warning service.

Areas of responsibility for active air defense will be prescribed by the air force commander. Normally, the tactical air force will be responsible for the active air defense of the battle area utilizing fighter aircraft and the mobile aircraft warning service. This mobile aircraft warning service will include RDF (radio direction finder), GCI (ground control interception), and other types of radio equipment and warning facilities essential for the interception of enemy aircraft.

b. When antiaircraft artillery, searchlights, and barrage balloons operate in the air defense of the same area with aviation, the efficient exploitation of the special capabilities of each, and the avoidance of unnecessary losses to friendly aviation, demand that all be placed under the command of the air commander responsible for the area. This must be done.

c. Antiaircraft artillery attached or assigned to ground forces combat units remain under the command of the ground force unit commander, as distinguished from the antiaircraft units assigned to an air commander for the air defense of an area.

■ 19. TACTICS AND TECHNIQUE.—Tactics and technique of air operations in air defense are covered in FM 1-15.

SECTION V

AIR SERVICE COMMAND

■ 20. GENERAL.—The air service command in a theater provides the logistical framework of the air force. Its functions comprise such activities as procurement, supply, repair, reclamation, construction, transportation, salvage, and other services required by the tactical units of an air force. The air service command provides all repair and maintenance of equipment beyond the responsibility of first and second echelons of maintenance.

■ 21. ORGANIZATION.—a. All air force service organizations and installations are under the air service commander's direct control. These organizations and installations include air quartermaster, ordnance, signal, chemical, medical, and

engineer depots, and service centers. Where ground force depots supplying material *common to both ground and air forces* are adequate, suitably located, and can be used, such material should not be handled by an air force depot. Material peculiar to the Army Air Forces will normally be handled only by the Army Air Forces and not by ground or service force agencies.

b. The service center is a mobile organization provided to establish and operate the necessary third echelon maintenance, reclamation, and supply points within close supporting distance of the combat units. Service centers normally are set up on the basis of one for each two combat groups.

■ 22. REFERENCE.—The details of organization, functions, and method of operation of an air service command are contained in Army Air Forces Regulations 65-1.

Bibliography

Books

- Ambrose, Stephen E. *Eisenhower*, vol. 1, *Soldier, General of the Army, President-Elect, 1890-1952*. New York: Simon & Schuster, 1983.
- Bailey, Thomas A. *A Diplomatic History of the American People*. 7th ed. New York: Appleton-Century-Crofts, 1964.
- Barnett, Correlli. *The Desert Generals*. Bloomington, Ind.: Indiana University Press, 1982.
- Bender, Marylin, and Selig Altschul. *The Chosen Instrument: Pan AM, Juan Trippe, The Rise and Fall of an American Entrepreneur*. New York: Simon & Schuster, 1982.
- Bidwell, Shelford, and Dominick Graham. *FirePower: British Army Weapons and Theories of War, 1904-1945*. London; Boston: George Allen & Unwin, 1982.
- Bills, Scott L. "The United States, NATO, and the Colonial World." In *NATO After Thirty Years*. Edited by Lawrence S. Kaplan and Robert W. Clawson. Wilmington, Del.: Scholarly Resources, 1981.
- Blumenson, Martin. *Kasserine Pass*. New York: Jove, 1983.
- . *Patton: The Man Behind the Legend, 1885-1945*. New York: Morrow, 1985.
- , ed. *The Patton Papers*. Boston: Houghton Mifflin, 1974.
- Boswell, James. *Boswell's Life of Johnson*. London: Oxford University Press, 1946.
- Bradley, Gen Omar N., and Clay Blair. *A General's Life: An Autobiography*. New York: Simon & Schuster, 1983.
- Brereton, Lt Gen Lewis H. *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe, 3 October 1941-8 May 1945*. New York: W. Morrow and Company, 1946.
- Butcher, Harry C. *My Three Years with Eisenhower: The Personal Diary of Captain Harry C. Butcher, USNR, Naval Aide to General Eisenhower, 1942-1945*. New York: Simon & Schuster, 1946.

- Carver, Field Marshal Lord. *Twentieth Century Warriors*. London: Weidenfeld and Nicolson, 1987.
- Carver, Field Marshal Sir Michael, ed. *The War Lords: Military Commanders of the Twentieth Century*. Boston: Little and Co., 1976.
- Collishaw, Air Vice Marshal Raymond, and R. V. Dodds. *Air Command: A Fighter Pilot's Story*. London: William Kimber, 1973.
- Copp, DeWitt S. *A Few Great Captains*. Garden City, N.Y.: Doubleday, 1980.
- Cooper, Matthew. *The German Air Force, 1933-1945: An Anatomy of Failure*. London; New York: Jane's, 1981.
- Craven, Wesley Frank, and James Lea Cate, eds. *The Army Air Forces in World War II*. 7 vols. 1948-1958. New imprint, Washington, D.C.: Office of Air Force History, 1983.
- Davis, Richard G. *Carl A. Spaatz and the Air War in Europe*. Washington, D.C.: Office of Air Force History, 1993.
- . *Tempering the Blade: General Carl A. Spaatz and American Tactical Air Power in North Africa, November 8, 1942-May 14, 1943*. Washington, D.C.: Office of Air Force History, 1989.
- Dixon, Joe C., ed. *History of U.S. Air Power*, vol. 5, *Project Warrior Study Guide*. Gunter Air Force Station, Ala.: Air University Extension Course Institute, 1984.
- Eisenhower, Dwight D. *Crusade in Europe*. New York: Da Capo Press, 1947, 1977.
- . *The Eisenhower Diaries*. New York: Norton, 1981.
- Faber, Harold, ed. *Luftwaffe: An Analysis by Former Luftwaffe Generals*. London: Sidgwick & Jackson, 1979.
- Field Manual (FM) 1-5, *Employment of the Aviation of the Army*, January 1943.
- FM 31-35, *Aviation in Support of Ground Forces*, 9 April 1942.
- FM 100-20, *Command and Employment of Air Power*, 21 July 1943.
- Finney, Robert T. *History of the Air Corps Tactical School, 1920-1940*. USAF Historical Study 100. Maxwell AFB, Ala: USAF Historical Division, Air University, 1955.

- Futrell, Robert Frank. *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907-1964*. Maxwell AFB, Ala.: Air University Press, 1989.
- Gooch, John. "Hidden in the Rock': American Military Perceptions of Great Britain, 1919-1940." In *War, Strategy, and International Politics: Essays in Honor of Sir Michael Howard*. Edited by Lawrence Freedman et al. Oxford; New York: Oxford University Press, Clarendon Press, 1992.
- Hallion, Richard P. *Strike from the Sky: The History of Battlefield Air Attack, 1911-1945*. Washington, D.C.: Smithsonian Institution Press, 1989.
- Hamilton, Nigel. *Monty: The Making of a General (1887-1842)*. New York: McGraw-Hill, 1981.
- Hart, B. H. Liddell, ed. *The Rommel Papers*. New York: Harcourt, Brace, 1953.
- Headquarters Army Air Forces. *The Air Force in Theaters of Operations: Organization and Function*. Washington, D.C.: War Department, 1942.
- Hewes, James E., Jr. *From Root to McNamara: Army Organization and Administration, 1900-1963*. Washington, D.C.: Center of Military History, US Army, 1975.
- Hinsley, F. H., et al. *British Intelligence in the Second World War: Its Influence on Strategy and Operations*. London; New York: Her Majesty's Stationery Office; Cambridge University Press, 1979-1990.
- Howe, George F. *United States Army in World War II: Mediterranean Theater of Operations: Northwest Africa: Seizing the Initiative in the West*. Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1957.
- Hurley, Alfred F. *Billy Mitchell: Crusader for Air Power*. Bloomington, Ind.: Indiana University Press, 1964, 1975.
- Irving, David. *The Trail of the Fox: The Life of Field-Marshal Erwin Rommel*. London: Futura Publications, 1978.
- Janowitz, Morris. *The Professional Soldier: A Social and Political Portrait*. Glencoe, Ill.: Free Press, 1960.
- Johnson, Samuel. *The History of Rasselas, Prince of Abissinia*. 1759.

- Kennett, Lee B. "Development to 1939." In *Case Studies in the Development of Close Air Support*. Edited by Franklin B. Cooling. Washington, D.C.: Office of Air Force History, 1990.
- . *The First Air War, 1914–1918*. New York: Free Press, 1991.
- Kohn, Richard H., and Joseph P. Harahan, eds. *Air Superiority in World War II and Korea: An Interview with Gen. James Ferguson, Gen. Robert M. Lee, Gen. William Momyer, and Lt. Gen. Elwood R. Quesada*. Washington, D.C.: Government Printing Office, Office of Air Force History, 1983.
- MacDonald, Charles B. *The Mighty Endeavor: The American War in Europe*. New York: Da Capo, 1969, 1986.
- Maurer, Maurer. *Aviation in the U.S. Army, 1919–1939*. Washington, D.C.: Office of Air Force History, 1987.
- Momyer, William W. *Airpower in Three Wars*. Washington, D.C.: Office of Air Force History, 1978.
- Mortensen, Daniel R. *A Pattern for Joint Operations: World War II Close Air Support, North Africa*. Washington, D.C.: Office of Air Force History and US Army Center of Military History, 1987.
- Murray, Williamson. *Strategy for Defeat: The Luftwaffe, 1933–1945*. Maxwell AFB, Ala.: Air University Press, 1983.
- Nordeen, Lon O., Jr. *Air Warfare in the Missile Age*. Washington, D.C.: Smithsonian Institution Press, 1985.
- Norris, Air Chief Marshal Sir Christopher Foxley. "Marshal of the Royal Air Force Lord Tedder." In *The War Lords: Military Commanders of the Twentieth Century*. Edited by Field Marshal Sir Michael Carver. Boston: Little, Brown and Co., 1976.
- Orange, Vincent. *Coningham: A Biography of Air Marshal Sir Arthur Coningham, KCB, KBE, DSO, MC, DFC, AFC*. London; Washington, D.C.: Metheun, Office of Air Force History, 1990, 1992.
- Owen, Roderic. *Tedder*. London: Collins, 1952.
- . *The Desert Air Force*. London; New York: Hutchinson, 1948, Arrow paperback edition, 1958.

- Patton, George S., Jr. *War As I Knew It*. Boston: Houghton Mifflin Co., 1947.
- Richards, Denis. *Portal of Hungerford: Life of Marshal of the Royal Air Force, Viscount Portal of Hungerford, KG, GCB, OM, OSO, MC*. London: Heinemann, 1977.
- Scales, Robert H., Jr. *Firepower in Limited War*. Washington, D.C.: National Defense University Press, 1990.
- Sherman, William C. "Tentative Manual for the Employment of Air Service, 1919." In *The U.S. Air Service in World War I*, vol. 2, *Early Concepts of Military Aviation*. Edited by Maurer Maurer. Washington, D.C.: Office of Air Force History, 1978.
- Taylor, John William Ransom. *Combat Aircraft of the World: From 1909 to the Present*. New York: Putnum, 1969.
- Tedder, Lord Arthur William. *Air Power in War*. London: Air Ministry, September 1947.
- . *With Prejudice: The War Memoirs of Marshal of the Royal Air Force Lord Tedder, GCB*. London: Cassell, 1966.
- Terraine, John. *The Right of the Line: The Royal Air Force in the European War, 1939–1945*. London: Hodder and Stoughton, 1985.
- Walker, Air Vice Marshal J. R. *Air Superiority Operations*. London: Brassey's, 1989.
- Zuckerman, Baron Solly. *From Apes to Warlords: The Autobiography (1904–1946) of Solly Zuckerman*. New York: Harper & Row 1978.
- . *Six Men Out of the Ordinary*. London: Peter Owen, 1992.

Articles

- "Air Support in Tunisia." *News Week*, 1 March 1943, as reprinted in *Cavalry Journal*, March–April 1943, 34.
- Coningham, Air Marshal Sir Arthur. "The Development of Tactical Air Forces." *RUSI Journal* 91 (1946): 32.
- Drummond, Air Marshal Sir Peter. "The Air Campaign in Libya and Tripolitania." *RUSI Journal* 88 (1943): 257.
- Erbsen, Claude S. "Old Blood and Guts." *Weekly Philatelic Gossip*, 21 November 1953, 366–68.

- Hayr, Air Marshal Sir Kenneth. "Logistics in the Gulf War." *RUSI Journal* 136 (1991): 14, 19.
- Hamilton, Nigel, and Richard Lamb. "Book Reviews." *Sunday Times*. London, 30 October 1983.
- Holley, I.B., Jr. "Land/Air Operations in North West Africa." *RAF Historical Journal* 9, 49, 52.
- Huston, James. "Tactical Use of Air Power in World War II: The Army Experience." *Military Affairs* 14, no. 4 (Winter 1950): 166-200.
- Infantry School. "Air Ground Training." *Mailing List*, July 1943, 1-38.
- Kuter, Laurence S. "Goddamit Georgie: North Africa, 1943: The Birth of TAC Doctrine." *Air Force Magazine* 56 (February 1973): 55.
- Maycock, Thomas J. "Notes on the Development of AAF Tactical Air Doctrine." *Military Affairs* 14 (1950): 186-89.
- "RAF Narrative: The Middle East Campaigns." London, Public Record Office.
- Ramsden, J. M. "Gulf Air War." *Aerospace* 18, no. 3 (March 1991): 4.
- Spaatz, Gen Carl A. "Leaves from My Battle of Britain Diary." *Air Power Historian* 4 (Spring 1957): 66-77.
- Tedder, Lord Arthur William. "Air, Land and Sea Warfare." *RUSI Journal* 91 (1946): 64.
- "Training and Simulation: Filling the Missing Link." *Jane's Defence Weekly* (13 April 1991): 606-09.

Unpublished Manuscripts

- Gabel, Dr. Christopher R. "The Lorraine Campaign: An Overview, September-December 1944." Thesis, Fort Leavenworth, Kans., 1985.
- Kuter, Laurence S. "Growth of Air Power." In author files.
- Mortensen, Daniel R. "History of Tactical Aviation." 1994.
- Norwood, J. Scott. "Thunderbolts and Eggshells: Composite Air Operations during Desert Storm and Implications for USAF Doctrine and Force Structure." Thesis, Maxwell AFB, Ala.: School of Advanced Airpower Studies. 1993.
- Owens, Maj Patrick. "The Evolution of FM 100-20, *Command and Employment of Air Power* (21 July 1943): The

Foundation of Modern Airpower Doctrine." Master's thesis, Fort Leavenworth, Kans., 1989.

Purcell, Edward T. "African Airline: A Study of Pan American Airways' Operations in Africa, 1941-1942." Master's thesis, Columbia University, 1946.

Ziemke, Caroline F. "In the Shadow of the Giant: USAF Tactical Air Command in the Era of Strategic Bombing, 1945-1955." PhD diss., Ohio State University, 1989.

Briefings, Histories, Lectures, and Reports

Air Effects Committee, 12th Army Group. "Effect of Air Power on Military Operations, Western Europe." Report, 15 July 1945.

Army-Air Force Relations: The Close support Issue (U). RAND Report R-906-PR. Santa Monica, Calif.: RAND, 1971.

Briefing. USAF Fighter Weapons School, Nellis AFB, Nev., 2 June 1992.

Cole, Col Philip, et al. "Observers Report, Air Operations in Support of Ground Forces in North West Africa (15 March-April 1943)." Report. VIII Air Support Command to Headquarters, Eighth Air Force, 1 July 1943.

Gropman, Dr. Alan. "How Much Aerospace Force is Enough for the New World 'Order'?" Speech. USAF Deputy Chief of Staff for Plans Conference, Washington, D.C., 16 March 1993.

Headquarters Twelfth Air Force. "Standard Operating Procedures." Maxwell AFB, Ala: Air Force Historical Research Agency (AFHRA), 18 October 1942.

Headquarters Seventh Army. "Notes on the Sicilian Campaign." Report, 30 October 1943.

History. Air Support Department, Army Air Forces School of Applied Tactics.

———. USAF 33d Fighter Group, January 1941-5 April 1943.

———. XIX Tactical Air Command, 4 December 1943-30 June 1944, 1 July 1944-28 February 1945, and February 1945-May 1945.

Kuter, Laurence S. "Lessons in Air Force Organization Learned from the North African War." Press statement, 22

- May 1943. Pentagon, Washington, D.C., Office of Air Force History.
- . "Organization of American Air Forces." End of Tour Report. Army Air Forces, 12 May 1943.
- Mitchell, William. "Tactical Application of Military Aeronautics." Lecture. US Army General Staff College, 1921.
- "NATAF Situation-on-Air-Plan in Tunisia." Report. Maxwell AFB, Ala., AFHRA files 614.430-2, frame 1314.
- Ninth AF. "Summary of Operations." 16 December 1944–31 January 1945 and 28 January–8 May 1945.
- Patrick, Maj Gen Mason. "Reorganization of Air Forces for National Defense." Report to the Adjutant General of the Army, 19 December 1924, Spaatz Papers, box 3.
- Third US Army. "After Action Report." August Operations and September Operations, 1944.
- Towle, Col Steward W. "Report on North African Mission." US Army Air Forces, VIII Fighter Command, 10 April 1943. In James Parton Papers, Special Collections, USAF Academy Library, Colo., box 1.
- XIX Tactical Air Command (TAC). "12,000 Fighter-Bomber Sorties."
- . "A Report on the Combat Operations of the XIX Tactical Air Command," 30 May 1945. Maxwell AFB, Ala., AFHRA.
- . "Daily Intelligence Summaries." 25 September–16 December 1944, 16 December 1944–31 January 1945, and 28 January–8 May 1945. Maxwell AFB, Ala., AFHRA.
- . "Morning Summaries." 8 August–September 1944, 25 September–16 December 1944, 16 December 1944–31 January 1945, and 28 January–8 May 1945. Maxwell AFB, Ala., AFHRA.

Papers, Diaries

- Kuter, Laurence S. Diary. 24 September 1942. Maxwell AFB, Ala., AFHRA file, 1592.
- . Papers. Maxwell AFB, Ala., AFHRA.
- Patton Collection. "Biographical Notes on General George S. Patton Jr." Manuscript Division, Library of Congress, Washington, D.C., box 5, chronological file.

Patton, George S. Diary, 1-4 April 1943. Patton Collection, Manuscript Division, Library of Congress, Washington, D.C.

Spaatz, Gen Carl A. Diary. Carl A. Spaatz Papers, box 7. Manuscript Division, Library of Congress, Washington, D.C.

———. Papers. Boxes 10, 11, 23, and 136. Manuscript Division, Library of Congress, Washington, D.C.

Smith, W.B. Papers. Personal Correspondence, box 10, Eisenhower Library, Abilene, Kansas.

Weyland, Gen Otto P. Diary, September-December 1944. AFHRA, Maxwell AFB, Ala.

Interviews

Anderson, Gen Samuel E. Interview with Hugh N. Ahmann, 28-30 June 1976. AFHRA files, K239.0512-905.

Cochran, Philip G. Interview with assistant chief of Air Staff, Intelligence, 28 June 1943. Washington, D.C. Copy at AFHRA, Maxwell AFB, Ala. No. 142.034-2.

Coningham, Air Marshal Sir Arthur. Interview with F. C. Pogue, 14 February 1947. The Office of the Chief of Military History Collection, Archives, US Army Military History Institute, Carlisle Barracks, Pa.

Ferguson, Gen James. Interview, 14 June 1988. Air University television studio, Maxwell AFB, Ala.

Kuter, Laurence S. Interview with Thomas A. Sturm and Hugh N. Ahmann, September-October 1974. Bolling AFB, Washington, D.C. AFHRA file K239.0512-810.

———. Interview with assistant chief of Air Staff, Intelligence, 25 May 1943. AFHRA files 142.052.

———. Interview with Cols Howard Engler and F. F. Everest, AAFSAT Air Room, Orlando, Fla., 15 June 1943.

Momyer, Gen William W. Interview with Lt Col John N. Dick Jr., 31 January 1977. Maxwell Air Force Base, Ala., AFHRA, K239.0512-1068.

Spaatz, Gen Carl A. Oral History interview with Arthur Goldberg, 19 May 1965. AFHRA, K239.0512-755.

Spaatz, Mrs. Carl A. Interviews with David R. Mets, 25 March 1982, 27 June 1982, and 12 April 1984. Washington, D.C.

Weyland, O. P. Interview with Dr. James C. Hasdorf, 19 November 1974. Maxwell AFB, Ala., AFHRA, K239.0152-813.

Memorandums

Acting Chief of Staff, G-3. Memorandum. To assistant chief of staff, Operations Division. Subject: General Montgomery's "Notes on High Command in War," 24 April 1943.

Anderson, Brig Gen O. A., assistant chief of Air Staff, operation plans. Memorandum. To director of air support. Subject: Revision of FM 31-35, 25 February 1943.

Anderson, Col Samuel Egbert. Memorandum. To Gen J. E. Hull, acting assistant chief of staff, Operations Division. Subject: Revision of Training Literature, 8 May 1943.

Arnold, Henry H. Memorandum. To Laurence S. Kuter. Subject: Air-Ground Technique Employed in North Africa, 9 June 1943.

Barr, Lt Col P. M., Headquarters NATAF. Memorandum. To Maj Gen M. S. Fairchild. Subject: Organization of American Air Forces, 28 March 1943.

Burwell, Col J. B., G-3. Memorandum. To Col O. L. Nelson, assistant to the deputy chief of staff. Subject (unknown), 24 June 1943.

Giles, Gen Barney M. Memorandum. To Gen Laurence S. Kuter. Subject: New Air-Ground Support Doctrine, 28 May 1943.

Hull, Brig Gen J. S., acting assistant chief of staff, OPD. Memorandum. To chief of staff, G-3. Subject: General Montgomery's "Notes on High Command in War," 24 April 1943.

———. Memorandum. To Col Samuel E. Anderson. 8 May 1943.

Kuter, Laurence S. Memorandum. To Henry H. Arnold. Subject: Air-Ground Technique Employed in North Africa, 10 June 1943.

- . Memorandum. To adjutant general. Subject: Air-Ground Technique Employed in North Africa, 16 June 1943.
- Lear, Lt Gen Ben, commander. Memorandum. To chief of staff. Subject: General Montgomery's "Notes on High Command in War," 17 May 1943.
- Lovett, Robert A., assistant secretary of war for air. Memorandum. To chief of staff. Subject: General Montgomery's "Notes on High Command in War," 18 April 1943.
- Marshall, George C. Memorandum. To assistant chief of staff, G-3. Subject: Revision of Training Literature, 24 April 1943. AFHRA files, 34163, frame 1074.
- Matchett, Col H. J., acting assistant chief of staff, G-3. Memorandum. To assistant chief of staff, Operations Division. Subject: General Montgomery's "Notes on High Command in War," 24 April 1943.
- McKinnon, Col Morton H., commander Air Support Command, AAFSAT. Memorandum. To Board of Officers Concerned. Subject: Board Proceedings, Air Support Board, AAFSAT, 2 March 1943.
- McNair, Lt Gen L. J., commanding general, Army Ground Forces. Memorandum. To Gen George C. Marshall, 30 December 1942.
- McNarney, Gen Joseph, acting chief of staff. Memorandum. To Gen Roy E. Porter, assistant chief of staff, G-3. Subject: Revision of Training Literature, 31 May 1943.
- Porter, Brig Gen Roy E., assistant chief of staff, Organization and Training Division, G-3. Memorandum. To Colonel McKinnon. Subject: Commendation, Source, in History of the Air Support Department, Army Air Forces School of Applied Tactics, vol. 1, 26 August 1943.
- . Memorandum. To Joseph McNarney. Subject: Revision of Training Literature, 19 June 1943, to include indorsement of 24 June 1943.
- . Memorandum. To adjutant general. Subject: Publication of FM 100-20, *Command and Employment of Air Power*, 30 June 1943.

———. Memorandum. To Henry H. Arnold. Subject: Indoc-
trination, 19 September 1944.

Stearley, Col Ralph F., Air Support Directorate, Air Staff.
Memorandum. To Col McKinnon, commander Air Support
Command, AAFSAT. Subject: Air Support Command
Chapter, 6 March 1943.

Correspondence

Arnold, Henry H. Letter to Spaatz, 28 June 1943. AFHRA files,
reel 1468.

———. Letter to Lord Arthur William Tedder. 5 July 1943. In
Arnold Papers, box 47, Manuscript Division, Library of
Congress, Washington, D.C.

Brett, Maj Gen George H. Letter to Gen Henry H. Arnold, 22
September 1941. In Arnold Papers, box 41, Washington,
D.C., Library of Congress.

Devers, Lt Gen Jacob L., commander Armored Forces. To Lt
Col Orin H. Moore, Armored Forces liaison officer, HQ
Army Air Force, War Department. Letter, 3 May 1943.

Eisenhower, Gen Dwight D. Letter to Gen Henry H. Arnold, 21
November 1942. Pre-Presidential Files, Eisenhower
Library, Abilene, Kansas, box 5.

———. Letter to Gen Henry H. Arnold, 8 February 1943.
AFHRA files, A1468, frame ca. 1299.

Hart, Liddell. Letter to Cassell & Co., Ltd., 26 April 1966.
Liddell Hart Centre for Military Archives, King's College,
London.

Kuter, Laurence S. Letter to assistant chief of air staff,
intelligence. 1 July 1943. AFHRA files, Kuter Collection,
reel 1468.

Kuter, Maj Gen Laurence S. Letter to Col Glen W. Martin, 22
November 1950.

———. Letter to Spaatz, 25 May 1943. Spaatz papers, reel
34165, frame 1250.

Patton, George S. Letter to Weyland, 21 September 1945.
Patton Collection, Manuscript Division, Library of
Congress, Washington, D.C., Personal and Professional
Correspondence, box 3.

Porter, Brig Gen Roy E. Letter to Col McKinnon, 26 August 1943.

Shaw, Col Donald P. Letter to Lt Gen DeWitt C. Smith Jr., USA, Retired, 11 February 1982.

Spaatz, Maj Carl A. Letter to Maj T. D. Milling at Fitzsimmons Army Hospital, Denver, Colo., 20 August 1930. Spaatz Papers, box 5.

———. Letter to Gen Henry H. Arnold, 18 February 1943. Spaatz Papers, box 10.

———. Letter to Gen Henry H. Arnold, 19 February 1943.

———. Letter to Gen Henry H. Arnold, 7 March 1943. Spaatz Papers, box 11.

———. Letter to Gen Henry H. Arnold, 24 May 1943. Spaatz Papers, box 11.

Stearley, Col Ralph F. Letter to Maj Gen St. Clair Streett, 24 April 1943. AFHRA file, 168.7045-147, frame 2293.

Microfilm

Adler, Brig Gen Elmer E., U.S. Military North African Mission, Cairo. To Brig Gen H. J. F. Miller, HQ Service Command, Wright Field, Dayton, Ohio, 29 November 1941. In Microfilm, A.1748, Bolling AFB, Washington, D.C.

———. Press Conference, 25 March 1943. In Microfilm, A.1748, Bolling AFB, Washington, D.C.

Olds, Brig Gen Robert, head of USAAC Ferrying Command in Washington, D.C. To Brig Gen Elmer E. Adler, US Military North African Mission, Cairo, 14 February 1942. In Microfilm, A.1748, Bolling AFB, Washington, D.C.

Wildman, Maj Frederick S., and Lt Col C. V. Whitney. Interviews, in Microfilm, A.1274, Bolling AFB, Washington, D.C.

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